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Understanding Agrihoods: An Exploration into the Growing Trend of Farm-to-Table Communities Across the United States

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**Understanding Agrihoods:
An Exploration into the Growing Trend of
Farm-to-Table Communities Across the United States**

A Thesis Presented

by

BENJAMIN S. BREGER

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF REGIONAL PLANNING

May 2020

Department of Landscape Architecture of Regional Planning

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ABSTRACT

UNDERSTANDING AGRIHOODS: AN EXPLORATION INTO THE GROWING TREND OF FARM-TO- TABLE COMMUNITIES ACROSS THE UNITED STATE

MAY 2020

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Agrihoods are a recent trend in real estate development that integrate agricultural amenities - such as working farms, orchards, or community gardens - into residential or mixed-use communities. As an emergent trend, agrihoods have the potential to enhance farmland preservation and local and regional food systems, making them a ripe area for research. However, very little scholarly research has been carried out to characterize, contextualize or evaluate agrihood developments. Thus far, the development model has primarily been detailed in popular media sources. This thesis serves as a baseline study that seeks to understand how neighborhood food systems operate within agrihood developments and how residents engage with their agricultural amenities.

A mixed-methods approach utilized an online survey for agrihood residents and interviews with developers and farm managers to describe a subset of agrihoods as case studies. Seventy-eight agrihoods were identified; six were selected for case study analysis, three of which provided results for the resident survey (n=388). Survey results indicate that the character of the community was a more important motivator for agrihood residents to move to their community compared to the agricultural amenities. While all

case study agrihoods sell produce directly to consumers through a CSA, farm store, or both, few survey respondents indicated they were CSA members or regularly shopped at the neighborhood farm store, with cost and convenience identified as the biggest barriers.

While resident engagement with the neighborhood farm may be limited, charging an annual resident fee to support the farm – an approach taken by four out six case study communities – may provide a guaranteed revenue source to the farm amidst low levels of resident engagement with the agrihoods’ sales outlets. Interviewees provided insight into the nuances of operating agrihood farms, enhancing resident engagement, and the spatial design of communities. The results of this thesis can help agrihood developers and managers, and land-use regulators to further understand this new development model. Furthermore, the findings in this thesis provide avenues for future research on how agrihoods contribute to farmland preservation and local and regional food systems.

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CHAPTER 1

INTRODUCTION

Agricultural-focused development, or the *agrihood*, is a growing trend in real estate, which situates single- and multi-family homes and community buildings within a landscape of edible plants, community gardens, and working farms. Defined as “single-family, multi-family, or mixed-use communities with a working farm or community garden as a focus” according to the Urban Land Institute (Norris, 2018), there are estimated to be 200 agrihoods in the United States and Canada, either built or in the development stages, with many of those projects currently in planning or early development phases (Donnally, 2015). Popular media suggests these neighborhoods have proven to be desirable places to live for a wide array of people and household types. Agrihoods span the urban and rural context and vary in scale, production system, and organizational structure. What they all appear to share in common however, is the integration of food production - such as farms, gardens, orchards, or edible landscaping - directly in the residential development, and the engagement of residents with the agricultural amenities through educational events, volunteering on the farm, and personal garden plots (Norris, 2018).

Agrihoods present a development model which has the potential to help address issues surrounding farmland preservation, local and regional food systems, and housing for a growing urban and suburban population. However, the agrihood trend is such a recent phenomenon that the implications of the agrihood development model for land-use planning, food systems, and housing have not been studied to date. Likewise, outside of popular media, very little research has been carried out to inventory, characterize, and

understand agrihoods, as a first step in defining this development model. This thesis serves as a baseline study which documents fundamental characteristics of agrihood communities, with a specific focus on the agrihood food system and how residents engage with the agricultural amenities. This research will add to an understanding of the extent to which agrihoods can contribute to goals such as farmland preservation and enhancing local and regional food systems and to provide a set of baseline characteristics and patterns of this development model.

In theory, agrihoods have the potential to contribute to local and regional food systems since this development model integrates agricultural production directly into a neighborhood, creating a connection between the farm and residents and reducing travel time for food shopping. However, within the definition of agrihoods, there is nothing specified about the type or amount of agriculture produced. As defined by Norris (2018), the agriculture in agrihoods could consist of the spectrum of agricultural production from a few raised bed gardens for residents, to an industrial farm which produces a commodity crop, such as corn or soybeans, for export. As such, the spectrum also includes the production of fruits and vegetables that are sold directly to consumers through local outlets, such as a CSA (Community Supported Agriculture) or a farm store. How agrihood farms interact with residents of the surrounding region, or whether they are solely focused on selling to their own residents has implications for the regional food system. This thesis characterizes the agriculture production systems, sales outlets, and the level of engagement with the farm/food production of the development for a sample of agrihoods.

Strong local and regional food systems rely on the preservation of productive farmland within communities. However, farmland is being converted to housing development at an increasing rate in the United States, with much of this loss occurring in suburban areas, where urban growth meets rural, agricultural areas (E. McMahon, 2010; Sorensen et al., 2018). Building houses, paving streets, and installing utility infrastructure on farmland irreversibly eliminates the agricultural function of the land because of the compaction and degradation of the soil. Meanwhile in many parts of this country, there is a shortage of urban and suburban housing, which produces a great deal of demand for housing in growing metro-regions (The Joint Center for Housing Studies, 2019). Agrihoods may provide a development model that can support new housing, while also preserving farmland and agricultural activity, helping to mitigate the competing forces of housing demand and farmland protection.

Within the definition of an agrihood, development could consist of urban, mixed-use developments, suburban neighborhoods, or sprawling, rural developments. In any of these contexts, given agrihoods potential to incorporate productive farmland, cluster development is an approach which could be considered, whereby developed areas are clustered together on the areas least suitable for agriculture and in the lowest-quality habitat zones, and the rest of the neighborhood is conserved as open space, such as agriculture or wildlife habitat (Arendt, 2010; Arendt et al., 1994). Agrihoods can leverage the revenue produced by home sales and residents to help support and protect the farm. In this model, the development of homes serves to protect farmland, which would seem to be a victory for both advocates of housing and farmland protection. To begin to develop some baseline data, the thesis explores the spatial characteristics of agrihoods, how

farmland is protected, or strategically preserved, and the financial relationship between the residents and the farm in the selected case studies.

Agrihoods also may help people, young and old, engage with and learn about food systems, nutrition, and cooking in a very hands-on way, that otherwise may not be possible if a farm was not co-located within a neighborhood. There is a growing disconnect between people and their understanding of food systems, given the great distance food often travels to arrive at a grocery store and ultimately, to one's plate (Ackerman-Leist, 2013). The local foods movement of the past few decades has seen a resurgence in supporting local farmers through direct-to-consumer sales outlets, such as CSAs and farmers' markets and many of these local sales outlets also incorporate nutrition and culinary education, as a means to acquaint people with how to cook with fresh produce (Low et al., 2015). Given the proximity of residents to the farm, agrihoods may provide important learning opportunities surrounding food systems, culinary skills, and agricultural production for both adults and children. Engaging residents in the local food system is an important opportunity presented by agrihoods, and a goal of this thesis is to understand both how the agricultural amenities within an agrihood were valued in residents' decisions to move to an agrihood and how they interact with these amenities after they moved into the community.

Lastly, agrihoods possibly present an opportunity to bridge the farmland affordability problem. As the average age of farmers steadily rises, agrihoods may provide an opportunity for young farmers to enter the industry because working for an agrihood likely reduces start-up costs and provides a committed, engaged marketplace (the residents) surrounding the farm. The biggest barriers to young farmers entering and

remaining in agriculture is land access and the majority of young farmers are not working their family's land (Ackoff et al., 2017), which highlights the potential for agrihoods to provide land access to young farmers. Working as a farmer in agrihood also involves much more than simple agricultural production, requiring engagement with volunteers, running educational activities, and managing sales outlets and distribution. These opportunities could help, to foster the next generation of farmers and provide young farmers with important experience in public engagement and education.

The extent and manner in which agrihoods can preserve farmland, supply housing, contribute to local and regional food systems, engage residents with local agriculture, and provide new farm-related jobs is still to be determined. To begin to answer these questions, this thesis examines the decisions made by developers and the activity of residents within agrihoods, to assess how the food system takes shape within agrihoods and the extent to which residents engage with their neighborhood's agricultural amenities. To understand the neighborhood food system, a case-study approach was taken, whereby a subset of agrihoods are studied closely with a focus on the neighborhood food system, spatial design, surrounding context, development history, and farm management structure. This approach was enriched by interviews with developers and farm managers. To understand resident engagement with the neighborhood food system, a survey was administered to agrihood residents to assess the importance of and their level of interaction with the agricultural amenities in the neighborhood. Taken together, the study of resident engagement and agrihood case studies analyzed a subset of agrihoods, which sheds light on how this development model can address issues surrounding farmland preservation, local and regional food systems, and housing.

Research Questions

- How do local food systems take shape within agrihood developments?
- To what extent do residents interact with and how important are the food and farming amenities within agrihood developments?

CHAPTER 2

LITERATURE REVIEW

The following literature review situates the agrihood trend in a historical and theoretical context as well as provides an overview of the current state of the review of agrihoods. This section begins with a review of the term ‘agrihood’ itself – it’s history and definitions. Then, a history of neighborhood development types is provided with a focus on the integration of open space and agriculture. This section concludes with a summary of the news articles and reports which have been written about the agrihood trend. Lastly, a review of the local foods movement is presented as the growing interest in local food provides insights for understanding agrihoods.

The Term ‘agrihood’

The term ‘agrihood’ has been defined by a few organizations and individuals and most of the definitions center on the integration of agricultural amenities within a residential community. The Urban Land Institute (ULI) report, “Agrihoods: Cultivating Best Practices” defines agrihoods as “single-family, multi-family, or mixed-use communities with a working farm or community garden as a focus” and estimates that there are 200 communities in the United States (Norris, 2018). Likewise, in the New York Times agrihoods are defined as “residential developments where a working farm is the central feature, in the same way other communities may cluster around a golf course, pool, or fitness center (Murphy, 2014).” Daron Joffe, a farmer and design consultant who has worked on numerous agrihood projects, describes how the definition of agrihoods is still fluid and not neatly defined: “an agrihood is a working farm that’s really connected to the residents, the local community outside the neighborhood, and connected to the

larger region and foodshed (Travers, 2017).” There does not seem to be a standard threshold for the amount of agricultural land or the type of agriculture for a community to be considered an agrihood, nor is there any governing body which approves of neighborhoods calling themselves agrihoods. While this allows for flexibility in the definition, it may cause confusion for potential residents and regulators as these neighborhoods can present quite differently based on the loose definition provided.

History of the Term

The first mentions of the term ‘agrihood’ began to appear in 2014, however, the first person to coin the term is still unclear. The term ‘agrihood’ appears in local and national media in 2014 (Carey, 2014; Hoyle, 2014; Murphy, 2014; Roth, 2014; Young-Saver, 2014) as a Google news search for ‘agrihood’ showed no mentions of the term prior to 2014. There are communities which identify as being ‘agrihoods’ which opened prior to 2014 – including Serenbe (2004), Agritopia (2005), South Village (2009), and Willowsford (2011) – indicating that the trend of ‘agrihood’ development did not coincide with the common usage of the term.

Master-Planned Developments Through History

While the term ‘agrihood’ appears to have gained popularity beginning in 2014, the origin of the development model whereby agricultural amenities are integrated into residential developments follows a history of developers integrating open space into master-planned communities. This history begins with the greenbelt towns prior to World War II, through suburban development of the 1950’s, to the New Towns movement and on to the open space and golf course developments of the 1980’s and 1990’s. The following section provides an overview of the history of open space communities leading

up to the agrihood trend.

Greenbelt Towns

Under the Federal Resettlement Administration, a part of the ‘New Deal’ presented by President Franklin D. Roosevelt in the 1930s, the Federal government undertook a major suburban development program, dubbed the ‘greenbelt towns’ (McFarland, 1966). This effort was meant to house throngs of rural farming families who were migrating to urban slums because they could no longer turn a profit, given advances in farming technology (Arnold, 1971). These greenbelt towns were constructed in an effort to combat urban decay and to provide safety, beauty, convenience, and a deep sense of community at an affordable cost. Greenbelt towns sought to “restore to all classes the warm community life of the rural village without sacrificing the economic advantages of a metropolitan town (Arnold, 1971, p. 22).” After initial plans for dozens of greenbelt towns in suburban locations around the country, only three were constructed due to financial constraints and poor timing: Greenhills, OH, Greendale, WI, and Greenbelt, MD (McFarland, 1966). Of these three developments, Greenbelt, 10 miles north of Washington DC, was the largest and most successful project, although none of the three were ever fully completed (Arnold, 1971).

Prospective residents had to apply for residency, with the white, nuclear family as the desired unit identified by the administration (Wagner, 1984). Men were expected to commute to the nearest city and women were expected to tend to the home and domestic matters (Wagner, 1984). Greenbelt, MD consisted of 885 dwellings on 120 acres of land, most of which were townhouse or apartment style. Surrounding this area, was 2,860 acre greenbelt with a number of working farms (Arnold, 1983). The greenbelt was meant to

buffer the town from surrounding development, to provide a land reserve for expansion of the community and to provide a rural environment for the townspeople (Arnold, 1971). While the land in this swath in Greenbelt, MD was unsuitable for profitable farming, many prospective residents advocated for allotment gardens to plant flower and vegetables in the greenbelt. These gardens came to fruition during the construction of Greenbelt, MD and could be rented out for a small fee (Arnold, 1971).

The gardens in Greenbelt, MD and around the country became particularly important during World War II. Throughout the war, with many farmers and food producers fighting abroad, a federal program, the National Victory Garden Program was developed by the War Food Administration to propagandize local food production (Basset, 1981). This effort sought not only to increase domestic food production for those at home and abroad but also to “maintain the vitality and morale of American on the home front through the production of nutritious vegetables in the outdoors (Bassett, 1981, p. 5).” Disseminated through newspapers, magazines, and airwaves, victory garden propaganda made clear that it is “the duty of every loyal citizen to do everything possible, to accept any sacrifice, so that there shall be plentiful supplies for the fighting forces and facilities for delivering them (Bassett, 1981, p. 6).” Victory gardens became a symbol of self-reliance, patriotism, and civic responsibility for those on the home front. At peak production in 1944, 20,000,000 victory gardens yielded approximately 40% of the fresh vegetable consumed in the United States (Bassett, 1981). These victory gardens were spread throughout the American landscape - in rural areas, villages, urban spaces, and most notably in backyards, front yards, community plots, and on vacant land - anywhere produce could be grown (Andreatta, 2015).

Post-war Suburbs

The end of World War II in 1945 brought the return home of millions of soldiers and a refocus on the domestic needs of American families - mainly housing. The post-war era ushered in a wave of suburban development unseen in the United States, led by federal subsidies and investments in Interstate highways (Hayden, 2003; Muller, 1977). With soldiers returning home and the resulting “baby boom” creating demand for more and larger housing, “the fastest and most profitable way to supply these needed dwelling units was to bypass city neighborhoods for open land on the urban fringe where it was much cheaper to build (Muller, 1977, p. 8).” In 1944, only 114,000 single-family homes were constructed, but by 1950, that number jumped to 1,692,000, an all-time high (Jackson, 1987).

Critics of the post-war suburban development boom reacted to the effect of suburbanization on inner cities as well as the aesthetic, cultural, and social conformity found in the suburbs. Noted urban historian, Lewis Mumford, described the suburban refuge as “a low-grade uniform environment” and, more specifically, “a multitude of uniform, unidentifiable houses, lined up inflexibly, at uniform distances, on uniform roads, in a treeless communal waste, inhabited by people of the same class, the same income, the same age group (Mumford, 1961, p. 509).” Meanwhile, because federal subsidies made the suburbs accessible to many people, but still mostly the white and middle-class, the inner-city housing market was deprived of home-buyers and families (Jackson, 1987). However, in this post-war era, suburbs presented a “private haven in a heartless world” for growing families, and while their development may have caused issues for inner cities, these families were “concerned about their hopes and dreams.

They were looking for good schools, private space, and personal safety (Jackson, 1987, p. 244).”

The spatial design of post-war suburbs has been reported to be understudied however, analyses indicate that open space in post-war suburbs consisted mostly of private yards and streetscapes, with agriculture and gardening rarely mentioned as a defining characteristic of these neighborhoods (Harris & Larkham, 1999; Southworth & Owens, 1993). The design of post-war suburban neighborhoods focused primarily on automobile transportation and private yards (Harris & Larkham, 1999), with public space remaining in the inner city and newly developed shopping centers (Jackson, 1987). Southworth & Owens (1993, p. 284) discuss how “public space, particularly streets and parks, has steadily eroded as the primary organizing element of urban form,” and go as far as to say, “the result has been a diminished sense of public life and identity in the urban fringe.” While post-war suburbs enabled growing families to buy a home outside the city, the development pattern diminished public open space, leading to more privacy and less civic life (Hayden, 2003).

New Town Movement

The 1960s and 1970s ushered in the next era of community planning, referred to as the New Town Movement in the United States and around the world (Susskind, 1973). This era saw the creation of entirely new and expansive communities across the United States and was seen as a response to some of the issues presented by the post-war suburbs. A 1964 New York Times article describes the intent of the New Town Movement and the federal programs which instituted the program as providing “what the standard suburb leaves out: good transportation, good timing of community facilities,

good public utilities, good open space, and good over-all design. Above all, it is concerned with the better use of land (Huxtable, 1964).” The New Town Movement in the United States may have also been motivated by a desire to showcase technological innovation and the merits of “liberal American capitalism” to the world.

When the New Town Movement began, it was initially led by private industry, with sites chosen and development led by private developers and financing found from the private sector (Peiser, 1984). Only with the passage of the Urban Growth and New Community Act of 1970 did government involvement begin as this act guaranteed government loans for privately-sponsored new towns (Peiser, 1984). Examples of New Towns developed during this era include Reston, Virginia, Columbia, Maryland, and Irvine, CA (Jackson, 1987) . While the New Towns movement provided developers and designers a clean palette on which to build an entirely new community, the massive scale and the long payback period led to many of the towns to default on their loans and go bankrupt, despite involvement by the federal government (Peiser, 1984).

Some have placed the design and morphology of New Towns in the United States within the Garden City movement with features including “housing clusters, car and foot traffic separated by designed overpasses, public art, prefabricated construction techniques, preserved public space, and neighborhood unit focal points” as found in Reston (Friedman, 2012, p. 53). As with post-war suburbs, agriculture and gardening was not a major focus of New Towns. The ideals of a new town, with public open space, clustered housing, and a de-emphasis of the automobile carried through to the 1970’s and found much support from the environmental movement.

Open Space and Golf Course Developments

Given the lack of environmental and open space issues addressed by the post-war suburbs, by the 1960s and 1970s there was a demand for more environmentally friendly developments. Accordingly, in the 1980s and 1990s, many state and local governments enacted policies to encourage developers to build more compact developments with integrated public open space (Bengston, et al., 2004). Though this trend did not play out until later in the century, the need for public open space was identified by the planning community as early as 1953 (American Society of Planning Officials, 1953).

Conservation development is an approach to land development which combines “land development, land conservation, and revenue generation while providing functional protection for conservation resources (Milder, 2007, p. 757).” This is a subject which comprises a niche activity compared to standard subdivision design, estimated to comprise about 2.5% of total US real estate development (E. T. McMahon & Pawlukiewicz, 2002). Within conservation development, cluster design is an approach originally developed in the 1960’s by William H. Whyte (Whyte 1966) and revived in the late 1980’s as conservation subdivision (Arendt et al., 1988, 1994; Arendt, 1996) This theory of community design clusters homes on a small portion of the parcel with the remaining land put into conservation and recreation (Arendt, 1996). This is a development model which popularized the principles of landscape planning outlined by Ian McHarg (1969), who identified the need to fit a development to the natural landscape (Hamin, 2007).

Agriculture, along with forests wetlands, and other open space was accepted as a land use which could be included in conservation developments. (Arendt, 2004; Milder,

2007). This approach can preserve farmland by offering the farm owner the option to sell only a portion of the farm for development. In their book, *Agricultural Urbanism*, de la Salle & Holland (2010, p. 171) describe how ‘development-supported agriculture’ has potential given “homeowners’ willingness to pay a premium for adjacent open space with an urban-edge farmer’s need for new sources of funding.” For a farmer, this option can bring an influx of capital, reduction in property taxes, while still maintaining a viable farm operation (Daniels, 1997). However, “agricultural and residential land uses are simply not very compatible (Daniels, 1997, p. 132)” due to the use of pesticides, loud machinery, and smells that are not always desirable by people choosing to move to the countryside. Likewise, farmers may reduce investment in their farm operation as they see clusters of homes beginning to develop around them because they foresee the eventual conversion of their land for housing (Coughlin & Keene, 1981).

During this same period of time, the golf industry and real estate industry were building a strong relationship as “real estate developers believed that golf courses were a great amenity in selling real estate (Hueber, et al., 2010, p. 14).” This relationship became so ingrained that during the 1990s, approximately 60% of the 400 golf courses each year were associated with real estate development (Hueber, et al., 2010). Real estate developers saw golf as an amenity which increased real estate values and sales turnover, so they often subsidized the operating costs of the golf course in order to sell lots. However, this became an issue when the developer, who was more interested in selling real estate, sought to transfer the golf course to the HOA to manage and because the course was subsidized, this was not always possible because the golf courses were not always economically viable. Subsequent research has also found that around 40% of golf

course community residents don't play golf that often but instead moved to the community for the aesthetics, the open space, and the access to nature (Arendt, 2010, p. 25). The inclusion of a golf course amenity into a master-planned community is an important predecessor for the agrihood movement as the financing of a golf course amenity is not too indifferent than a farm (Norris, 2018).

Early Agriculture Developments

Two communities which serve as important precursors for the agrihood development model include Village Homes (1975) and Prairie Crossing (1992). These two neighborhoods follow the conservation development model and incorporate agriculture as an amenity for residents.

Village Homes in Davis, CA, is a 60-acre community which began construction in 1975 and finished in 1982. Within 12 acres of open space and 12 acres of common agricultural land, were 244 housing units (Francis, 2003). Village Homes has been called successful, referred to by *Time Magazine* as a “pioneering experiment in ecological living” and “one of the world’s best examples of sustainable development (Jackson, 1999, p. 79).”

Michael Corbett (Corbett & Corbett, 2000, p. 95), the visionary developer and designer of Village Homes and author of the book chronicling its history, wrote that “our present neglect of productive landscaping is wasteful in a number of ways. It not only wastes land, but also wastes energy and resources used in transporting and marketing agricultural produce.” In Village Homes, houses were placed around a common strip, managed collectively by the homeowners on either side. This is where people tended to garden, both in individual plots and in creative mutual agreements which integrated

vegetable gardens with patios and children's play areas. They have allowed wild cherries and blackberries to grow wild amongst the drainage channels. Tiny orchards and vineyards were interspersed among the homes to provide openness and relief from the monotonous pattern of houses (Francis, 2003). Corbett & Corbett (2000, p. 166) write:

“In these days of large-scale mechanized agriculture, it is easy to write off as insignificant the yield of a peach tree here, two grapevines here, and a half-dozen tomato plants there. But 100 peach trees scattered through a neighborhood of 1,000 persons are as productive as 100 trees in 1 acre of orchard, and 1,000 such neighborhoods are equivalent in production to 1,000 acres of peach orchard.”

Similar to Village Homes, concerns about environmental conservation and sustainability fueled the development of Prairie Crossing, a master-planned conservation community outside of Chicago. In 1972, a large developer announced plans to build thousands of conventional housing units, typical of the surrounding suburbs, on the land which eventually became Prairie Crossing. A group of neighbors came together to object to the proposal, fearing that such sprawl would destroy the rural landscape they loved. After nearly 15 years of legal battles, the neighbors were able to purchase the land and formed the Prairie Holdings Corporation. As they stated, somewhat oxymoronicly, Prairie Crossing was built in an effort to preserve open land (Prairie Crossing, 2018). This planned community of 395 units integrated a 100-acre organic farm, a lake, and 60% conservation area on the 677 acre site (Prairie Crossing, n.d.).

Agriculture at Prairie Crossing takes several different forms. There is an agrarian aesthetic, where a barn, farmhouse, windmill, and stables were retained and integrated into the community for both utilitarian and aesthetic purposes (Weathersby Jr., 1999). A certified organic farm, Sandhill Family Farm, operates within the community on 100-

acres of farmland (*Prairie Crossing*, n.d.). The farm sells produce within the community and outside the development through a farmer's market and CSA model (*Prairie Crossing*, n.d.). The Learning Farm at Prairie Crossing is situated on three acres and is funded by the Liberty Prairie Foundation (*Prairie Crossing*, n.d.). This farm seeks to educate and inspire people to value healthy food, land, and community through hands-on experience on an organic farm (*Prairie Crossing*, n.d.). Finally, the Prairie Farm Corps is an educational program which seeks to "lay the groundwork for a more resilient local food system by immersing youth in sustainable agriculture, providing mentoring, and reflecting on the collaboration between land and living systems (Watson, 2016, p. 48)."

Agrihoods

In this timeline of development models beginning with the Greenbelt towns, to post-war suburbs, to New Towns, and onto conservation developments, the amount, placement, and type of public open space has shifted. Whereas Greenbelt towns allotted open space for residents along the outskirts of the community, post-war suburbs incorporated very little public open space and recreation opportunities for residents. Conservation developments integrated public open space for residents to enjoy, often with permanent protection status, however, agriculture was not always incorporated outside of a few notable communities. Finally, golf course communities incorporated an open space amenity in the form of a golf course which was developed alongside the real estate.

Within these trends, agrihoods can be seen as taking the principles of conservation developments to preserve farmland, with the business model of a golf course community, where the farmland can be considered an amenity for residents to

enjoy and possibly increase real estate values. However, the extent to which agrihoods do preserve farmland, how the business model is structured, and how residents engage with the agricultural amenities has not been studied, so making this connection to past development models is still speculative.

Agrihood Characteristics

A review of the literature focused on the agrihood phenomenon showed no peer-reviewed articles which mention this topic. Searches in Google Scholar, JStor, Web of Science, and Academic Search Premier for the terms “agrihood” or “agri-hood” or “master planned agricultural communities” showed no relevant results. The lack of peer-reviewed information points to the emergent nature of this trend and the importance of carrying out some baseline research to characterize and analyze agrihood developments. While there are no peer-reviewed articles regarding agrihoods, many articles in local, regional, national, and international publications speak to the existence of this trend and the popularity of agrihood developments (Table 1). These publications typically describe the agrihoods that opened or that began development before the 2008 recession – Agritopia, South Village, Willowsford, Serenbe, Bucking Horse, Rancho Mission Viejo – to make broad generalizations about the roughly 200 agrihoods which the Urban Land Institute has estimated to be built or in planning stages (Donnally, 2015). These sources speak to the amenities, organizational structures, reasons for popularity, benefits, and issues surrounding agrihoods which will be summarized below.

Author	Year	Publication	Title
Appelbaum	2009	New York Times	Organic Farms as Subdivision Amenities
Murphy	2014	New York Times	Farm-to-Table Living Takes Root
Albright	2014	National Geographic	It's a Beautiful Day in the Agrihood
Donnally	2015	Urban Land	Growing Sociability: Integrating Communal Spaces with Development
Lidz	2015	Smithsonian	How Farms Became the New Hot Suburb
Feldman	2015	Modern Farmer	Planned Agricultural Communities: Where Utopia Meets Suburbia
Hoak	2016	Market Watch	Why farmland may become a more popular neighborhood amenity than a golf course
Travers	2017	Civil Eats	Growing Agrihoods: The Next Frontier in Urban Revitalization
Trapasso	2014	Realtor.com	Seeds of a New Community: Farm Living Takes Root in the Suburbs
Giacobbe	2017	Architectural Digest	Inside the "Agrihood" Residential Real-Estate Boom
Loudenback	2017	Business Insider	Rich millennials are ditching the golf communities of their parents for a new kind of neighborhood
Dunn	2017	The National	Are "Agrihoods" the Cure for the Common Suburb?
Norris	2018	Urban Land Institute	Agrihoods: Cultivating Best Practices

Table 1. Articles about Agrihoods written in popular news media

Agrihood Amenities

The agricultural amenities within agrihood developments include a mix of food production methods, sales outlets and food-related educational and recreation activities. This assemblage of amenities creates multiple modes for residents to engage with the farm (Norris, 2018) and can build a greater sense of community (Hoak, 2016). The production types described in these publications include working farms, community gardens, greenhouses, orchards, vineyards, livestock, and chicken coops (Albright, 2014; Appelbaum, 2009; Feldman, 2015; Loudonback, 2017; Murphy, 2014; Travers, 2017). At a few of the agrihoods, residents have the opportunity to volunteer on the farm (Donnally, 2015; Feldman, 2015).

The food produced from these sources reaches residents through sales outlets including community-supported agriculture (CSA), farm stands, neighborhood

restaurants, and local farmer's markets (Appelbaum, 2009; Donnally, 2015; Feldman, 2015). In Serenbe, most of the CSA members live in outlying towns (Lidz, 2015), which is an indication that agrihoods can provide food to the surrounding region and not just to their own residents. Finally, the farm-based activities mentioned in the articles include cooking classes, farm workshops, and farm-to-table dinners (Donnally, 2015; Dunn, 2017), however, many articles mentioned agrihoods offered 'farm-based' activities, without providing further details or examples. The extent to which residents engage with agricultural amenities in their neighborhood, whether it be purchasing food or through events, was not discussed in the articles.

Potential Benefits of Agrihoods

The benefits which agrihoods convey to broader society and to their local communities have been discussed in the popular media as well as the Urban Land Institute report (Norris, 2018). Dunn (2017) and Hoak (2016) discuss how agrihoods can present options for farmers who can sell some of their land at a profit but retain some of the land as farmland and gain access to a new market in the form of the agrihood residents. Dunn (2017) discusses how "the agrihood concept can help developers persuade farmers who are torn between preserving their land and cashing in on it. With an agrihood, farmers can do both." Similarly, Hoak (2016, p.1) describes how farmers can "sell land for profit yet are spared from watching former farmland completely covered by single-family homes and cul-de-sacs." Meanwhile, Norris (2018, p. 48) speculates that "agrihoods, individually and as a whole, have terrific potential to address challenges in our existing food system," however does not expand upon how or why specifically this can happen.

Ultimately, with only a few agrihoods fully built, an accurate assessment of their benefits will take time as more developments mature. Furthermore, if farmland preservation and food systems are important challenges which agrihoods can address, then certain metrics, such as how much farmland is preserved within an agrihood relative to the total development size and their contribution to local food systems will need to be quantified.

Potential Issues for Agrihoods

For the agrihood development trend to continue to grow, there are certain issues that developers must address to increase their chances of success. The news articles reviewed highlight a set of issues faced by the agrihoods which have been built thus far as a means of speculating upon potential problems other agrihoods may face. For example, there is the issue of housing costs in agrihoods which are reportedly very expensive, which may make agrihoods affordable only to the wealthy (Albright, 2014; Donnally, 2015; Feldman, 2015; Trapasso, 2017). Feldman (2015) describes how home prices at Bucking Horse run as high as million dollars and at Willowsford, home prices start at around \$600,000, which raises issues of class and privilege. However, Murphy (2014) suggests that agrihood home prices may be comparable to the surrounding region. Making agrihoods accessible and affordable to people of all income levels is an issue of equity and an important issue for developers and local officials to address if this trend is going to continue to grow.

Another issue facing agrihoods is the nature of farming, as it is challenging, unpredictable, and sometimes messy undertaking, which does not always align with the goals of a developer. Murphy (2009) describes how “farm-focused developers must

juggle financing a few houses at a time with cultivating crops on a yearly cycle,” which is why some rent the farmland to professionals. Finding the right farmer is mentioned as a decision critical to the success of an agrihood development (Murphy, 2014) Farming can also be out of place in a manufactured community, as it is wild and unpredictable (Albright, 2014). This played out at Serenbe, where their farmer said one of the reasons, he didn’t graze pigs was that residents might see them as an eyesore (Dunn, 2017). Mitigating the aesthetic impacts of agriculture for residents and aligning the goals and timelines of development and agriculture are important issues for agrihoods to address as this trend continues to grow.

Appeal of Agrihoods

The articles describe agrihoods as desirable places to live for residents of all ages and family sizes – including retirees (Hoak, 2016; Loudenback, 2017) and young, active millennial families (Donnally, 2015; Loudenback, 2017). Their popularity propelled agrihoods through the 2008 collapse of the real estate market with developments remaining intact and property values appreciating (Murphy, 2014) through this challenging period. The popularity of agrihoods has been attributed broadly to the dual-nature of agrihoods where residents can enjoy a strong sense of community and the convenience of living near amenities found in urban areas with the presence of farms and access to fresh food found in the urban and suburban fringes. Trapasso (2017) describes prospective agrihood residents as “seeking the perks of a more bucolic lifestyle without sacrificing the convenience of the burbs or the advantages of being near a larger city.” Echoing this sentiment, Loudenback (2017) describes the agrihood appeal as not having “to trade in the city for sustainable living is most likely a big attractor for millennials.”

Other articles mention more specific drivers for the appeal of agrihoods, with the most common being the local foods movement (Hoak, 2016; Lidz, 2015; Murphy, 2014; Trapasso, 2017), looking for a sense of community (Donnally, 2015; Hoak, 2016), being able to maintain a backyard garden without the responsibility (Albright, 2014; Murphy, 2014) and providing a green space to play and explore (Appelbaum, 2009; Hoak, 2016; Loudenback, 2017; Murphy, 2014). Understanding the appeal of agrihoods and why residents are moving to these developments has implications for how the food system and agricultural amenities within the agrihoods are marketed, designed, and managed and possibly the extent to which residents will engage with these amenities. Similar to golf course communities, in which many residents don't actually play golf, it may be that residents are more interested in the open space, the aesthetics, and the sense of community than the access to fresh food and farm-based activities.

Local Foods Movement

Identified as a driver behind the appeal of agrihoods, the growth of the local foods movement has important implications for understanding the appeal and functioning of agrihood developments. In the United States, interest in eating locally produced food has grown rapidly over the past few decades (Martinez et al., 2010). The word "locavore" was named the "word of the year" in 2007, a term that characterizes this consumer movement towards "using locally grown ingredients" and "taking advantage of seasonally available foodstuffs that can be bought and prepared without the need for extra preservatives (*Oxford University Press*, 2007)." The National Restaurant Association recognizes interest in local ingredients as a top trend in 2019 and one that is likely to continue as they project out to 2030 (National Restaurant Association, 2019a, 2019b).

This trend has been captured in popular media such as books by Michael Pollan (2006) and documentaries like *Food, Inc.* (Kenner, 2009), but is also evident numerous research articles and databases.

Defining the concept of local in the local foods movement has been a challenge for researchers, policy makers, and market managers alike. The concept of “food miles,” that is, the distance food travels from farm to plate has long been used as a means of defining what is local (Van Passel, 2013). Accordingly, state boundaries or a certain geographic distance, such as 100-miles, are often used to define local food (Darby et al., 2008). Distance is only one component of defining local food and some authors indicate a more complete understanding of local food should include the number of relationships that occur along the way from farm to plate, such as processors and distributors (Trivette, 2015).

Some have argued that the act of eating locally by consumers represents a “desire to reintegrate food production and consumption within the context of place (Schnell, 2013, p. 615).” In a survey of local food eaters, Schnell (2013, p. 623) found that the idea of “local food” is about “significantly more than physical distance. It is about the broader and more complex concept of place, and how to relate to, responsibly belong to, and identify with it.” Still, others, including USDA researchers, argue the marketing channel used by the farmer can also be used as a means of defining local food (Low & Vogel, 2011; Martinez et al., 2010). Thus, identifying the growth in local food can be understood by tracking the growth of numerous direct-to-consumer (DTC) outlets, such as farmers’ markets, community-supported agriculture (CSA), and roadside farm stands across the nation (Low & Vogel, 2011).

The USDA (USDA National Agricultural Statistics Service, 2017) tracks farms with direct-to-consumer sales, the number of farmers' markets, and the number of farms selling some of their produce through a CSA arrangement, however there have been inconsistencies in how these trends are measured over the years. Data from the USDA Census (USDA National Agricultural Statistics Service, 2017) indicates that local food sales and the number of farms with local food sales have been increasing faster than total agricultural sales and overall number of farm operations in the United States over the past few decades. Between 2002 and 2017, local food sales more than tripled, whereas total agricultural sales grew only 94%, meaning local food sales grew roughly 2.5 times faster than total agricultural sales during that time period (USDA National Agricultural Statistics Service, 2017). Meanwhile, the total number of agricultural operations declined from 2002-2017, losing nearly 100,000 operations nationwide, however, the number of operation with local food sales grew by nearly 15,000 (USDA National Agricultural Statistics Service, 2017).

Farmers engaged in local food sales can use both DTC outlets and intermediated sales, which include farmers' sales to local retail, restaurant and regional distribution outlets (Low & Vogel, 2011). In 2012, 7.8% of farms were marketing food locally, and of those 70% used only DTC marketing channels (e.g. farmers' markets and CSA) while 30% used DTC and intermediated channels (Low et al., 2015). In 2008, local food sales were estimated to be \$4.8 billion, including intermediated sales to retailers, restaurants, institutions, distributors, as well as direct to consumer sales (Low & Vogel, 2011), while in 2017, that number reached \$11.8 billion (USDA National Agricultural Statistics Service, 2017), representing a growth rate of nearly 250% in nine years.

Farmers' markets are a direct linkage between food consumers and producers and have continued to rise in popularity. From 2000 to 2019, the number of farmers markets in the United States has more than tripled, with an increase from 2,863 to 8,771 across the country. Growth has been increasing at a slower rate over the past six years, with only a 7.6% increase from 2013 to 2019, compared to 85% growth from 2006-2013, when there was an increase from 4,385 to 8,144 markets around the country (USDA Agricultural Marketing Services Division, 2019). According to a USDA survey of farmer's market managers across the country, customer traffic and sales increased at most markets between 2012-2013, indicating strong demand from consumers and that competition from nearby markets are not impacting their sales (USDA-AMS-Marketing Services Division, 2015). An important component of farmer's market is that they offer a space of special events and programs for their communities as well as opportunities for nutritional and culinary education (USDA Agricultural Marketing Service, 2019). Farmer's market also afford consumers and producers the opportunity to interact directly, building trust and accountability (Kerton & Sinclair, 2010; USDA-AMS-Marketing Services Division, 2015)

Community Supported Agriculture (CSA) is a food production and distribution system that directly connects farmers and consumers. The essence of the CSA relationship is "mutual commitment" by which "the farm feeds the people and the people support the farm and share the inherent risks and potential bounty (Henderson & Van En, 2007, p. 1)." While CSA initiatives were practiced in Chile and Japan in the 1970s, the concept was brought to the United States via the biodynamic tradition pioneered by Rudolf Steiner in Europe (McFadden, 2004).. The CSA concept came United States

around 1986 when two CSA operations began in New England (McFadden, 2004). The founder of one of the first CSAs, Robyn Van En, became an influential figure, pioneering the rise of CSAs around the country through publications and research (Henderson & Van En, 2007). The system has taken off and accounts for 7% of DTC sales (USDA, National Agricultural Statistics Service, 2016).

There are inconsistencies in how CSAs are tracked and measured by the USDA and online databases such that determining an estimate of the total number and growth rate over time is difficult. While there are over 4,000 CSAs listed on Local Harvest, the largest online database for CSAs (Local Harvest, 2019), the USDA listed 12,617 and 12,549 farms which marketed their products through CSA programs in 2007 and 2012 respectively (USDA, National Agricultural Statistics Service, 2009, 2014). However, in the Local Food Marketing Practices Survey of 2015, the USDA listed just 7,398 farms which marketed their products through CSA programs. However, this was a sample of direct-marketing farms and used to generate estimates, whereas the census is sent to all known farms (USDA, National Agricultural Statistics Service, 2016). The difference between USDA and Local Harvest estimates may come down to whether a farm is solely marketing their products through a CSA system or whether CSA just makes up a component of sales (Galt, 2011). However, whether the number of CSAs is closer to 4,000 or 12,000, the trend growing from two in 1986, to thousands in just three decades, indicates growth and popularity of this system of food production and distribution.

Consumer Motivations, Experience, and Barriers

With the growth in local food sales, researchers have sought to understand some of the nuances of what motivates consumers to purchase food directly from producers,

what they are purchasing, and the demographic profile of consumers who buy directly from producers. These studies (Table 2) come in the form of willingness-to-pay

Author(s)	Year	Sales outlet	Method	n	Location	Primary Motivator	Secondary Motivators
Bond et al.	2009	all local outlets	national sampling telephone survey	1,549	national	support local farmers	quality of food
Haney et al.	2015	CSAs	consumer intercept survey	97	PA	quality of food	lifestyle, supporting local
Morgan et al.	2018	CSAs	consumer interviews	20	NY, NC, VT, WA	support local farmers	quality of food
Pole & Gray	2013	CSAs	Member email survey	565	NY	eating fresh food	eating local food
Abelló et al.	2014	farmers' market	consumer intercept survey	170	TX	quality of food	support local
Betz & Farmer	2016	farmers' market	consumer intercept survey	313	IN	better for environment	nutrition, support local
Byker et al.	2012	farmers' market	literature review	22 articles	n/a	quality of food	support local, social appeal
Carson et al.	2016	farmers' market	consumer intercept survey	348	NC	quality of food	support local, social appeal
Conner et al.	2010	farmers' market	telephone survey	953	MI	quality of food	support local, food safety
Gumirakiza et al.	2014	farmers' market	consumer intercept survey	1,488	NV and UT	purchase fresh produce	social interaction
Toler et al.	2009	farmers' market	consumer intercept survey	102	OK	quality of food	supporting local
Wolf et al.	2005	farmers' market	consumer intercept survey	336	CA	quality of food	value, social appeal
Rushing & Ruehle	2013	local food at grocery stores	national sampling online survey	1,300	national	support local farmers	variety, healthier

Table 2. Primary and Secondary Motivators for Purchasing Local Food

surveys (Morgan et al., 2018), direct interviews (Gumirakiza et al., 2014), and modelling based on food purchasing datasets which will be summarized below. Researchers have identified three primary potential motivators for consumers to purchase food directly from producers because of: 1. the perceived freshness and quality of the food 2. interest in supporting local farmers, or 3. the social and community aspects of farmers' markets and CSA arrangements (Table 2).

Demographics appear to be a weak predictor of local food consumption (Abelló et al., 2014; Byker et al., 2012; Thilmany et al., 2008; Zepeda & Li, 2006). However, studies have found that motivational factors better explain the types of people who will shop at farmers' markets, CSAs, or roadside farm stands. The most common motivators for shopping at farmers' markets include a belief the produce is higher quality and for supporting the local economy and local farmers (Table 2). Research also indicates that consumers at farmers' markets value the experience of shopping itself, placing importance on the social, entertainment, educational aspects of the market (Abelló et al., 2014; Betz & Farmer, 2016; Byker et al., 2012; Wolf et al., 2005).

Overall, many studies found demographic factors could not differentiate consumers who shop at farmers' markets versus those who shop at grocery stores (Abelló et al., 2014; Byker et al., 2012). However, two studies in California found that farmers' market shoppers tended to be more likely to be female, married, and have completed post graduate education but that age, income, and employment were not significant (Gumirakiza et al., 2014; Wolf et al., 2005). Shoppers at farmers' markets also tend to enjoy cooking (Wolf et al., 2005; Zepeda & Li, 2006) and are concerned about environmental quality (Betz & Farmer, 2016; Thilmany et al., 2008)

Members of CSA operations are motivated by similar reasons as those who patronize farmers' markets. This is perhaps surprising since CSA members have a much more intimate relationship with their farmer and fellow members, as opposed to a farmers' market where consumers can peruse multiple vendors. While the CSA concept was initially focused on a strong sense of community amongst members and interdependence between producer and consumer (Henderson & Van En, 2007), the importance of building community and collaborative relationships in members joining CSAs appears to have dwindled (Haney et al., 2015; Pole & Gray, 2013). In at least one study, trust and a personal connection with the farmer comprised only a part of the "value added" of CSA participation (Morgan et al., 2018). Overall, studies of CSA members indicate they joined because of the fresh, local, and organic produce and knowing the local origin of the food (Haney et al., 2015; Morgan et al., 2018; Pole & Gray, 2013). For many people, the decision of where to go food shopping comes down to convenience, quality, and cost. While direct-to-consumer outlets are seen as having higher quality, they are not always the most convenient, which is one of the main barriers preventing consumers from accessing CSAs and farmers' markets (Bond et al., 2009; Morgan et al., 2018; Wolf et al., 2005). A market research study by Rushing & Ruehle (2013) indicates that most people shop primarily at large supermarkets, where they can get all of their food shopping done at the same place, but that large retailers are the least trusted. However, farmers markets are the most trusted, followed by natural foods markets, and locally owned supermarkets. Abelló et al. (2014) found that travel distance and farmers' market patronage were inversely related, indicating that convenience is an important factor in visiting the market. Stewart & Dong (2018) found that, for many people,

shopping at farmers' markets and CSAs is just a means to buy high quality, local food, and if such food were sold at supermarkets, this would be a fine substitute. They conclude that the unique aspects of direct-to-consumer outlets, such as education and direct interaction with producers are not that important, and convenience and access to local food are the most important aspects. Indeed, CSAs tend to be found in rapidly growing, heavily urbanized or suburbanized areas (Schnell, 2007) and overall, the value of local food sold is highest in metropolitan areas and is geographically concentrated in the Northeast and on the West Coast (Low & Vogel, 2011), indicating that local food sales are most successful in high dense areas, where a producer, or producers can easily reach producers.

Besides quality and convenience, cost is another important factor in food purchasing decisions and one that has implications for direct-to-consumer food purchasing (French, 2003; Padel & Foster, 2005). A major barrier to the local food economy is a perception that locally produced food is more expensive than non-local food. This perception is reflected in studies of consumers who identify higher prices as a barrier to purchasing local (Birch & Memery, 2014; Byker Shanks & Serrano, 2010), however, this perception may have more to do with organic food, rather than local food (Donaher & Lynes, 2017; Feldmann & Hamm, 2015). Counteracting this perception are numerous empirical research studies from across North America which indicate that there is no difference in price between local and non-local foods and perhaps a cost-savings at farmers' markets (Claro, 2011; Donaher & Lynes, 2017; McGuirt et al., 2011; Pirog & McCann, 2009; Valpiani et al., 2016). Consumers will also pay more for local food compared to non-local food according to numerous willingness-to-pay studies (Lim &

Hu, 2016; Packaged Facts, 2015; Rushing & Ruehle, 2013; Thilmany et al., 2008). Thus, it appears there is a perception that local food costs more and consumers will pay more for it, yet empirical research cited above indicates that local food is price competitive with non-local food. Possible explanations include that organic food and local food may be conflated and organic food does appear to be more expensive. There is also a possibility that local food prices have more variation depending on the season, the weather, and the production capacity of the farmer (Pirog & McCann, 2009) such that seeing occasional high prices for local food gives the impression that the food is always more expensive.

Producer Motivations, Demographics, and Economics

Farmers make a decision about how and where to sell their products based on a multitude of factors, but consistency of sales and profit are two of the most important factors considering farming is, in most cases, a business and means of making income for the farmer. Deciding to sell locally, whether through a CSA, farmers' market, farmstand, or intermediated channel are options for farmers (Uematsu & Mishra, 2011), but so is selling to a national or international wholesaler, producing food for animal feed, or growing crops for biofuel. Understanding the decision to sell direct for human consumption at a local outlet has been the focus of numerous studies which draw on USDA data, regional surveys, and farmer interviews. Understanding who sells local food and the nuances of what makes selling local food a profitable endeavor, or a profitable component of a larger operation, is vital to its continued growth and the purported benefits to the local economy and consumers.

Lass et al. (2003) surveyed 354 CSA farm operators around the country in an effort to characterize active CSA farm operations in the United States. Overall, their research found that CSA farmers are relatively young (44 years old), new to farming and CSA operations (average 10 years of farming, 5 years of running a CSA) highly educated (74% had at least a college degree), run small operations (median of just 7 acres of cropland), and 96% produced using organic or biodynamic methods (Lass et al., 2003). As for labor and finances, CSA operations relied on a diverse combination of labor including the principle farmers, hired workers, family, interns, apprentices, and member labor. CSA farms had gross farm incomes that appeared higher than the Agricultural Census, with nearly 63% of the CSA farms reporting gross farm income that exceeded \$20,000 compared to 38.5% for the Agricultural Census farms. Overall, a greater percentage of CSA farmers were “dissatisfied with their compensation and financial security, but these farmers felt the CSA operation helped improve their situation (Lass et al., 2003, p. 2).” Importantly, CSA is just one way these farmers market their products, with 53% also using farmers’ markets and direct sales to restaurants. As it relates to the founding goals of the CSA concept, mainly community and collaboration, 73.5% of CSA farms organized social and educational events to bring the community closer to the farm.

While Lass et al. (2003) indicates CSA farmers are strained financially yet consider the CSA component a financial benefit, other studies indicate the CSA model may not always be financially sustainable for producers and many rely on “off-farm income, have some form of wealth, or be willing to live extremely, extremely simply (Pilgeram, 2011, p. 388).” Galt (2013) focuses on CSA farmers in California and finds a disturbing trend towards “self-exploitation” by which farmers keep prices low and give

larger shares to members because of a sense of “obligation” to their members, despite the fact that they may lose money. Interestingly, those farms with a staff member acting as an intermediary between the farmers and consumers have reported higher earnings, indicating that having an intermediary “shields the farmer from a large workload, can decrease the sense of obligation that can be detrimental to the farmer making a living, and/or serve as a third party to look after the farmer’s economic interests even if the farmer neglects them (Galt, 2013, p. 358).” In general, larger, more diversified, and older CSA operations tend to earn more, perhaps explained by the fact that low-earning CSAs don’t always account for the extra labor involved in member coordination, newsletters, events, and transportation, and the economies of scale and efficiency gained in a larger operation (Galt, 2013).

While there are certain non-material benefits from supplying local food which farmers value, ultimately, more money needs to be earned than is expended in order for a venture to be truly sustainable for an extended period of time. As mentioned by Galt (2013) “earning an income is not a high priority for many of the farmers interviewed but instead value is placed on autonomy, building relationships, self-sufficiency and love for the work (p, 341).” Pilgeram (2011) adds “essentially, the farmers were subsidizing the food at the market with their off-farm income, their unpaid or very poorly paid labor, or both. In truth, all these farmers have made tangible sacrifices to produce food. They may have an abiding desire to farm, yet their desire to farm does not diminish the sacrifices they were making (p. 388).”

White (2013, 2015) critically interrogates the CSA model and how it works for consumer and producers alike. His research of CSA members and producers highlights

the “mythology” and “allure” of being a CSA member and the direct impact being a member has on enthusiasm and knowledge about small scale farming. Meanwhile, CSA members are “attracted to CSA as a form of ethical consumption and assume that the farmer receives adequate financial support. However, this is not always the case (White, 2015, p. 56).” Thus, there is real tension identified by White (2013, 2015) and Pilgeram (2011) between the ideals of sustainable agriculture the need for farmers to support oneself. Understanding how CSA operations can be made more financially sustainable for the producer will be critical to the long-term success of this model and the purported benefits to both producer and consumer.

The CSA model is transforming and finding more success with the influence of new technology, marketing strategies, and unique business partnerships. These advances allow CSA operations to scale up, retain members, share costs, and produce more food year-round for their members (Woods & Tropp, 2017). In a survey of 205 CSA producers, Woods et al. (2009) found that two-thirds of CSAs surveyed were not certified organic but grew produce to organic standards, 85% used direct email for communication with members, and one-third included products they did not produce in their shares to members. In 2015, a survey of 495 CSA operations by Woods & Tropp (2017) find that over half of CSA operations have increased the amount of product being sourced from other producers, nearly three-quarters have extended their season, two-thirds have increased web-based sales, over half have seen the profitability of their CSA increase since it began and expected their sales to increase over the next years. Many respondents expressed interest in cooperating with other producers for promotional recruitment fairs, health and wellness voucher programs, low-income voucher programs, shared

educational resources, and shared delivery service. The authors conclude that “the CSA business model has evolved significantly, as entrepreneurs and market forces have opened opportunities for the implementation of the model in ways quite unlike the early CSA operations (Woods & Tropp, 2017, p. 24).” Seeing as risk-sharing, direct interaction with the farmer, and volunteering on the farm are not major reasons why member join CSAs, despite these aspects being part of the founding principles of the CSA model, it makes sense that CSA operations would focus on increasing convenience, diversity of products, and year-round service.

Conclusion

By reviewing the literature surrounding agrihoods, the history of planned agricultural communities, and the local foods movement, the agrihood trend can be better understood in a historical and theoretical context. There is a lineage of integrating agriculture into master planned communities in the United States beginning with Greenbelt towns, into New Towns, and then into open space and golf course developments of the 1980’s and 90’s. Understood in this lens, the recent agrihood trend of the last decade can be seen as a twist on an old idea rather than an entirely new phenomenon. The local foods movement places the agrihood trend in the context of growing interest in selling and purchasing local food and possibly provides some insight into the motivations for residents moving to agrihoods, as they may be seeking a closer relationship with local food.

While informed by historical and theoretical context, the agrihood trend does present new areas of interest, including the presence of working farms in master-planned communities and the direct sale of produce from the local farm to residents. While

similar to open space and golf course communities of the past, the inclusion of a working farm and the deliberate connection between the farm and surrounding residents is a defining characteristic of the agrihood trend of the last decade and will be the topic studied in this research.

CHAPTER 3

METHODOLOGY

A mixed-methods approach was used for this study, combining an analysis of agrihood spatial design, history, and business structure, with qualitative research on agrihood residents and neighborhood food systems. Through this approach, each agrihood development can be presented as a case study including a descriptive analysis of size, population, farm acreage, and general spatial design, as well as an understanding of the neighborhood history, the relationship between residents and the local agriculture, and the neighborhood food system. These case studies can then be compared to gain a better understanding of the variation within agrihoods and the relationship between spatial design and resident engagement with the local food system.

Potential agrihood case study communities were identified using social media and other online sources. A subset of the agrihoods identified was selected for study based on specific characteristics, including maturity and amenities. Next, an online survey was administered to residents in order to gauge the extent to which residents interact with and the importance of the food and farming amenities in each agrihood. Concurrent to the survey, semi-structured interviews were carried out with agrihood developers, farmers, and managers in order to understand the local food system within each neighborhood. Throughout this process, social and physical data on each agrihood was collected in order to understand the spatial design and density characteristics.

Identifying and Characterizing Agrihoods

Agrihood communities were identified through the internet and communication with a number of people involved in the research, design, development, and management

of agrihoods including Daron Joffe, Ed McMahon, Brett Coleman, Clayton Garrett, and Scott Snodgrass. Google searches for the terms: (agrihood or agri-hood) + (development, neighborhood, community, agriculture) were utilized to discover mentions of specific communities within news articles or the community website itself. Facebook and Instagram were searched using the hashtags #agrihood and #agrihoods to discover communities. The list of 78 communities (Appendix A) was identified and then cross checked with a list of 42 agrihood communities identified by the Urban Land Institute, available online at: <https://americas.uli.org/research/centers-initiatives/building-healthy-places-initiative/food-real-estate/>.

The agrihood definition provided by the Urban Land Institute was used to determine if a community should be considered an agrihood (Norris, 2018). Each community's website was reviewed as well as any news articles written about the community. To be considered an agrihood, the development had to meet the following criteria: 1. some level of agricultural production occurring in the community either by the residents themselves or by non-residents, and 2. the agriculture was spatially integrated into the neighborhood and was part of the same initial development plan.

Using the sources identified in the review of the literature available on each of the # of developments, information about each agrihood was recorded into a spreadsheet (Appendix A). The information collected consisted of location information, including city, state, and surrounding context. Communities were considered urban if they included mixed-use buildings and homes had limited setbacks from the street. Communities were considered suburban if they consisted primarily of single-family homes in a region also consisting of single-family homes setback from the street outside of a metro-region.

Rural communities were identified if they were isolated from other neighborhoods and surrounded by open space. Finally, communities were considered resorts if they self-identified as being a resort and were located in remote locations but included high-density, mixed-use buildings and homes.

Though the information was not available for every community through online sources, the year, total acreage, and number of units was collected for every community for which the information was available. The year is an estimate of when the community opened but was reported slightly differently for communities, as the year can refer to when the community began construction or when the first residents moved in. Total acreage was consistent for communities and includes the entire extent of the neighborhood, also known as gross acreage, including all streets, homes, open space, and farms. The number of units in the community refers to the total number approved for the development, so since some are still under construction, they may not currently have this number of units. The number of dwelling units includes all the types of housing offered in the community, if there are multiple types (e.g. single-family homes, apartments, senior living).

The agricultural amenities at each neighborhood were inventoried and categorized into three production types and two sales outlets. Though other categories were found, the most common amenities were a working farm, a community garden, and an orchard. For consistency, it was decided to only inventory these production types, though notes were made about other types. The most common sales outlets and the ones that were inventoried were a CSA (community-supported agriculture) and selling through a farmers' market either within or outside of the community.

Identifying Case Study Communities

From the larger list of agrihood communities collected, a subset of communities was identified to investigate further as case study communities (bolded in Appendix A). A stratified sampling method was utilized, which is sampling from a population which can be partitioned into subpopulations. This was done in order to explore variety within agrihoods, including size, context, and maturity. Agrihood communities were categorized by context (urban, suburban, or rural) and size (less than 10 acres, 10-500 acres, or greater than 500 acres). For the purposes of this study, only agrihoods which were built and have had residents living in them or active agricultural amenities for at least two years were considered as case study communities.

Collecting Data and Creating Maps for Case Study Communities

For each of the six case study communities selected, the previous information collected about size, units, and agricultural amenities was further researched and confirmed by reviewing news articles, neighborhood websites, final site plan documents, and through conversations with neighborhood officials. For each community, additional information on the total acreage, resident populations, number of units, housing type, and the location and type of agricultural amenities was collected. By overlaying the master site plan provided by each community with aerial imagery provided by Google Earth, neighborhood maps with consistent formatting were created using Adobe Illustrator, highlighting the relative location of structures, roads, trails, water, farmland, recreation land, and conservation land.

Administering Online Survey for Agrihood Residents

An online survey (see Appendix E) for agrihood residents was created using Qualtrics software in order to gauge the extent to which residents engage with food and agricultural amenities and the importance of these amenities in them moving to the neighborhood. The survey methodology was approved by the University of Massachusetts Institutional Review Board on August 29, 2019. For each case study community, a contact person was identified from their website, such as the developer, lifestyle manager, or home-owner's association (HOA) chairperson. This person was then contacted to ask whether they could assist in administering the survey to residents within the community. Per approved IRB protocol, the email list of residents could not be provided to me directly such that the developer or HOA were relied on to send the survey out to residents (see Appendix D). Initial contact about the survey was made with each case study community on October 26th, 2019 and the survey was sent out to each community on dates ranging from December 3, 2019 to December 30, 2019. The survey was closed on January 24, 2020 for all communities. Only 3 of the case study communities provided adequate survey results because one community did not respond, and two others included non-residents in their survey results.

Semi-Structured Interviews with Agrihood Developers, Farmers, and Managers

Interview questions (see Appendix B) were developed for agrihood developers, farmers, and managers in order to understand the local food system within each agrihood. Of the 6 case study communities, the developer, farm manager, or both were contacted (see Appendix C) for semi-structured interviews at all communities, and a total of 7 interviews were completed. The questions probed the questions of how the farm was

funded, how and where food was sold, and how residents were intended to interact with the production of food. The semi-structured interviews were carried out over the phone and were recorded using Rev Call Recorder, a free phone app. Conversations could flow organically but the conversation was steered back to the original interview questions. This approach allows for specific dimensions of the research questions to be explored while leaving flexibility for the participants to offer new meaning to inform the data. Semi-structured interviews are particularly important in mixed methods research by allowing for focused, two-way communication which adds depth, nuance, and meaning to the other qualitative data collected. The identity and contact information for these developers, farmers, and managers is easy to find online.

CHAPTER 4

RESULTS

Agrihood Identification and Characterization

Seventy-eight agrihood communities were discovered and documented through searches online and via social media (see Appendix A). Of these seventy-eight agrihoods, the majority, 58% were considered to be in a suburban context, while 21% were in a rural context, and 21% in an urban context (Table 3). Consistent information could not be gathered for total neighborhood size, number of units, or farm acreage, making comparison across the seventy-eight difficult. The most common agricultural amenities included working farms, community gardens, and orchards. Working farms were incorporated into 72% of the agrihoods identified, while 46% included community gardens, and 18% included orchards (Table 3). Other agricultural amenities which were noted at a few agrihoods included greenhouses, pastureland, an apiary, and chicken coops. The typical sales outlets included CSAs and farmers' markets, as over a third, 36% of communities sold produce grown in the neighborhood through a CSA or farmers' markets directly to consumers. Other sales outlets included sales to restaurants, through farm stands, and wholesale. The year the agrihood opened or began development was found for 67 communities, and of these, nearly three-quarters (73%), opened or began development since 2014, stressing the recency of this trend.

Context	
Suburban	58%
Urban	21%
Rural	21%
Resort	1%
Production Type	
Working Farm	72%
Community Garden	46%
Orchard	18%
Sales Outlet	
CSA and Farmers' Market	9%
CSA	24%
Farmers' Market	17%
Year Project Began (n=67)	
2014 or later	73%
Before 2014	27%

Table 3. Summary Statistics for Agrihood Identification List (Appendix A)

Out of the seventy-eight communities, eleven were identified as potential case study communities and were contacted to participate in this research through interviews and a resident survey (bolded in Appendix A). Of these eleven communities, six expressed willingness to participate in this research through either interviews or resident surveys, or both. These six communities include Aberlin Springs, Creekside Farm, South Village, Agritopia, Harvest Green, and Willowsford. All communities allowed a representative to be interviewed as part of this research. While each community also agreed to send out the survey to their residents, meaningful survey results were only received from Agritopia, Harvest Green, and Willowsford. Respondents at Creekside Farm included people who did not live in the community but were members of the agrihood CSA. Respondents from Aberlin Springs included people who had not moved into the neighborhood yet. This invalidated these results as the resident survey was meant

to gauge the thoughts of agrihood residents who were currently living in the community. No residents from South Village responded to the survey.

Case Study Communities

Six agrihoods were investigated as full case studies – Aberlin Springs, Creekside Farms, South Village, Agritopia, Harvest Green, and Willowsford (Figure 1). The following section presents for each community, a diagrammatic basemap, agrihood location information, an informational table, a diagram showing the neighborhood food system, and demographic information for the surrounding region and, if applicable, survey respondents. Information for these case studies emerged through interviews with agrihood developers and managers as well as agrihoods own websites. For each case study, representatives from each agrihood approved of the diagrams after checking for accuracy. A neighborhood description is provided which was compiled using online sources, books, and existing case studies.

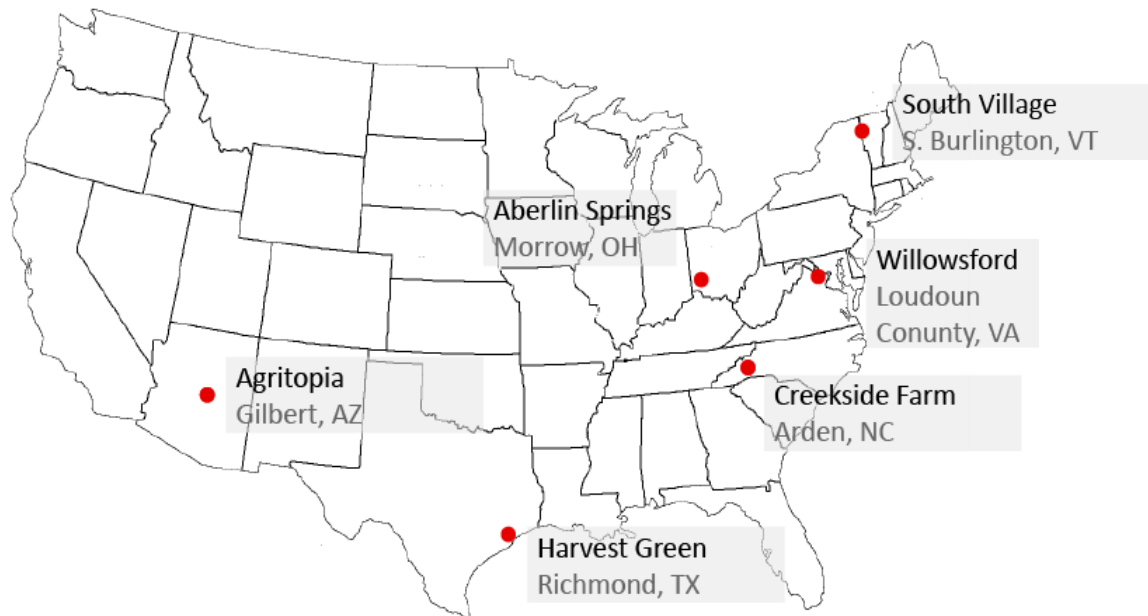


Figure 1. Case Study Locator Map



Figure 2. Aberlin Springs Neighborhood Diagram.

Location



Figure 3. Aberlin Springs Location.

Quick Facts

Year Open	2017
Developer	Leslie Aberlin (Pendragon Homes)
Total Size	142 acres
Housing	138 houses
Farm Size	50 acres
Farm Amenities	Working farm, pasture, community gardens, permaculture garden
Sales Outlets	CSA, farm store
Farm Management	Leased to private farm operations
Management Type	For-profit enterprise

Table 4. Aberlin Springs Information.



Figure 4. Aberlin Springs Homes.



Figure 5. Aberlin Springs Community Center and Pond.

Aberlin Springs Neighborhood Food System

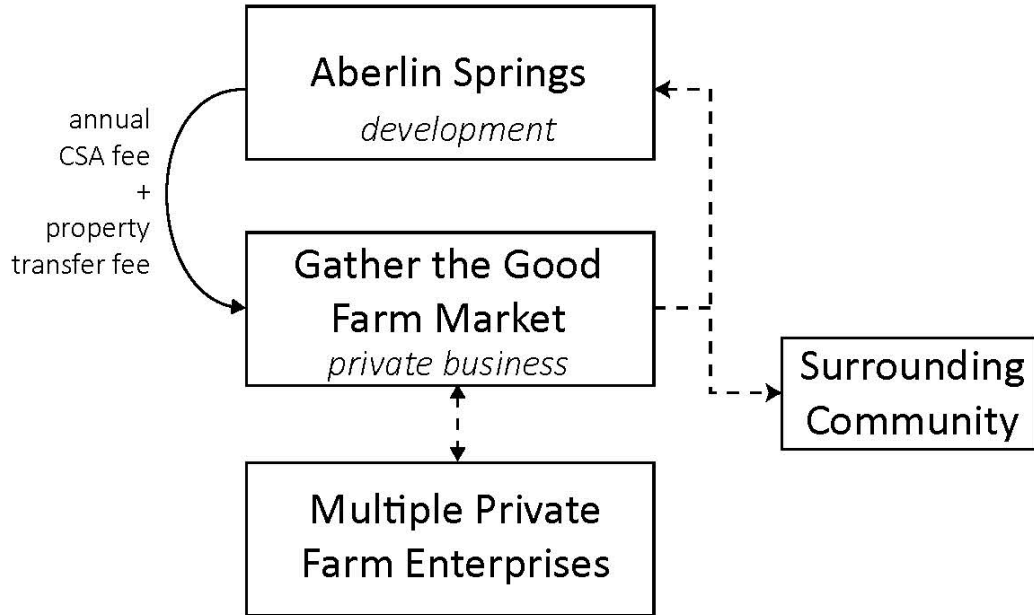


Figure 6. Business Structure for Aberlin Springs Farm. All residents are charged a CSA fee which supports the neighborhood Farm Market. Private farm enterprises lease neighborhood land and receive a portion of CSA fees to supply food to the Farm Market.

Demographics

	Warren County	Census Tract
Age		
18-24 years old	10%	14%
25-34 years old	15%	12%
35-44 years old	19%	17%
45-54 years old	21%	21%
55-64 years old	17%	18%
65-74 years old	10%	11%
75 years or above	7%	8%
Household Income		
Less than \$25,000	12%	12%
\$25,000 to \$49,999	17%	23%
\$50,000 to \$99,999	33%	22%
\$100,000 to \$149,999	19%	20%
\$150,000 to \$199,999	10%	12%
\$200,000 or more	11%	12%
Median Income	\$ 79,397	\$ 83,682
Household Size		
1	20%	15%
2	36%	35%
3	16%	18%
4 or more	27%	33%

Table 5. Demographics Table for Aberlin Springs Region. Data from U.S. Census Bureau 2013-2017 American Community Survey 5-Year Estimate. Age percentages based on total above 18 population.

Aberlin Springs Description

Aberlin Springs is located in Morrow, Ohio, located 35 miles due south of Dayton and 35 miles northeast of Cincinnati (Figure 3). The community began construction in 2017 and is currently in the midst of development, with phase 1 under construction and phase 2 nearly sold out. Aberlin Springs totals 142 acres and will eventually contain 138 single-family homes. The neighborhood generally takes on a loop form, with smaller, side roads off of the main circular drive (Figure 2). The farm, community center, and pond are at the heart of the community, encompassed within the loop drive. The agricultural amenities within Aberlin Springs include a working farm, pastureland, community gardens, and permaculture gardens.

The land that has become Aberlin Springs has been owned by the Aberlin family since the 1990's, at which point they built a compound of Swiss-style buildings on the property and used the land as a hobby farm. The original Swiss timber frame buildings have been repurposed as community buildings at the heart of the community, including a clubhouse with a demonstration kitchen and fitness center, Gather the Good Farm Market where food products grown in the neighborhood are sold, and a wellness center with a spa and yoga room.

The agricultural amenities within Aberlin Springs are managed by private farm enterprises which lease the land from the neighborhood developer (Figure 6). Residents of Aberlin Springs are required to be CSA members and pay a membership fee to the Gather the Good Farm Market, which is supplied by farmers within the neighborhood and from local partners. The Farm Market also receives income from property transfer fees. Farm enterprises within the neighborhood receive a share of residents' CSA fees but can

also sell their products to outlets outside of the neighborhood. The specific farm elements will change to meet the needs of the residents and to match the type of farm enterprises that operate within the community. On their website the agricultural elements noted include egg-laying chickens, sheep, meat rabbits, goats, and a variety of greens and microgreens grown in the greenhouse. Aberlin Springs also contains community gardens where residents can maintain their own plot as well as an herb garden. Residents of Aberlin Springs are also able to participate in a variety of events and activities centered around food, health, and wellness. Events included in their calendar include kids' baking classes, and educational plant identification walk, cooking classes, opportunities to rent the commercial kitchen, and farm-to-table dinners.

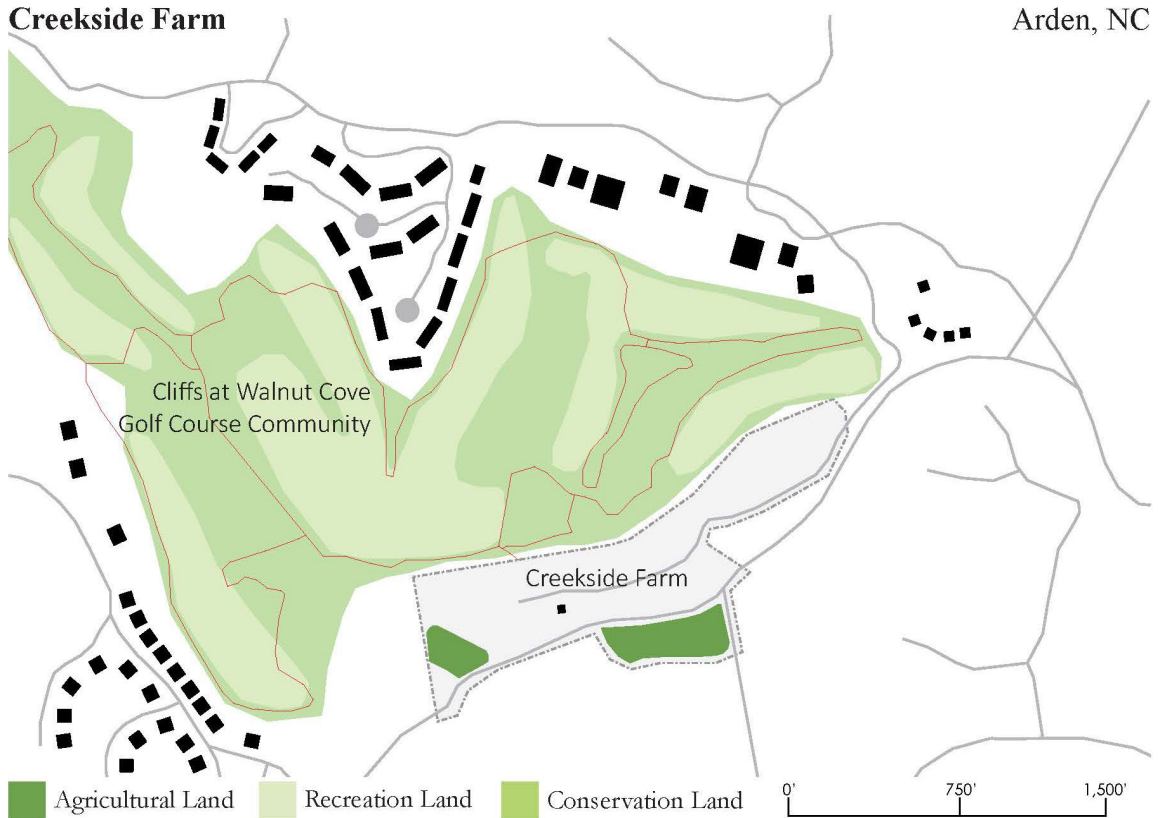


Figure 7. Creekside Farm Neighborhood Diagram.

Location



Figure 8. Creekside Farm Location.

Quick Facts

Year Open	2019
Developer	Robert Turner
Total Size	20 acres
Housing	18 houses
Farm Size	50 acres total (6 acres for CSA)
Farm Amenities	Working farm, pasture
Sales Outlets	Local farmers market, CSA, restaurants, food bank donations
Farm Management	Owned and managed by developer
Management Type	For-profit enterprise

Table 6. Creekside Farm Information.

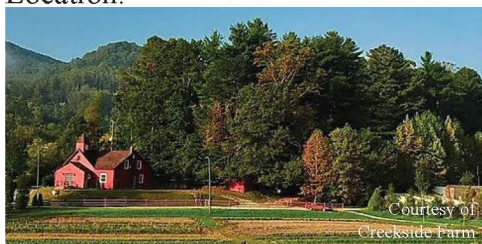


Figure 9. Creekside Farm Education Center



Figure 10. Creekside Farm future development area.

Creekside Farm Neighborhood Food System

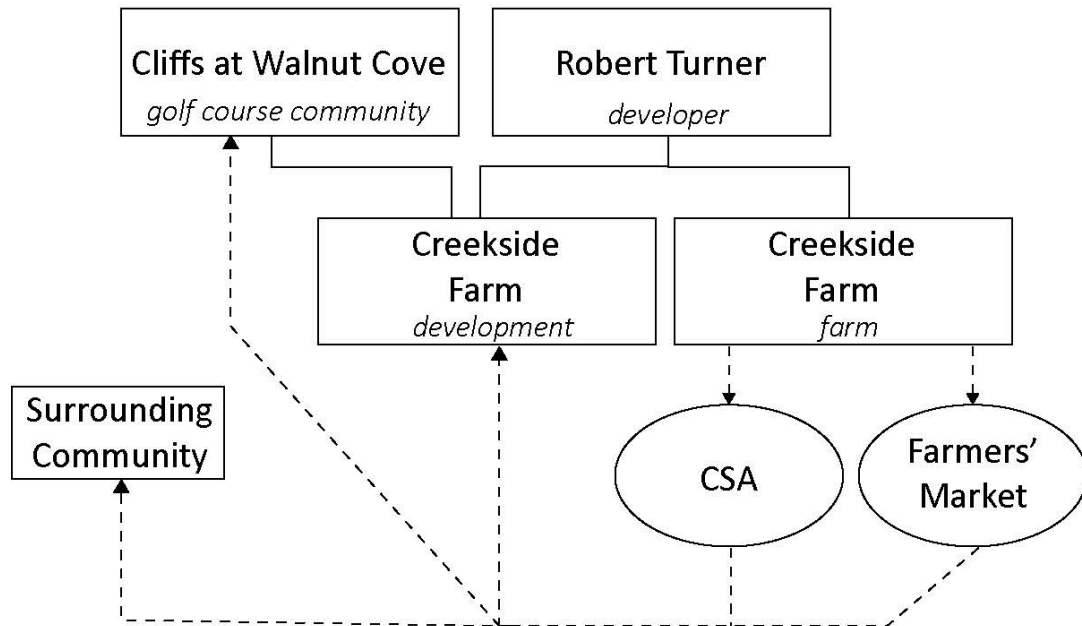


Figure 11. Business Structure for Creekside Farm. All residents are charged a CSA fee which supports the neighborhood Farm Market. Private farm enterprises lease neighborhood land and receive a portion of CSA fees to supply food to the Farm Market.

Demographics

	Buncombe County	Census Tract
Age		
18-24 years old	10%	8%
25-34 years old	17%	9%
35-44 years old	16%	15%
45-54 years old	16%	22%
55-64 years old	18%	18%
65-74 years old	13%	15%
75 years or above	10%	12%
Household Income		
Less than \$25,000	24%	16%
\$25,000 to \$49,999	28%	20%
\$50,000 to \$99,999	29%	30%
\$100,000 to \$149,999	12%	18%
\$150,000 to \$199,999	4%	6%
\$200,000 or more	4%	10%
Median Income	\$ 48,464	\$ 69,470
Household Size		
1	34%	29%
2	38%	43%
3	13%	10%
4 or more	15%	19%

Table 7. Demographics Table for Creekside Farm Region. Data from U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimate. Age percentages based on total above 18 population.

Creekside Farm Description

Creekside Farm is a neighborhood under development in Arden, North Carolina (Figure 8). The 20-acre neighborhood is located within the southernmost portion of the Cliffs at Walnut Cove, an existing 2,000-acre golf course community (Figure 7) situated roughly 15 miles south of downtown Asheville. Creekside Farm is being developed by Robert Turner in conjunction with Cliffs at Walnut Cove, as six of the homes will be developed by the Cliffs golf course community and 12 will be developed by Robert Turner, all under the name, Creekside Farm at Walnut Cove. Creekside Farm contains around 6 acres of production gardens within the community and an additional 50 acres of preserved farmland to the south.

The development history of Creekside Farm is chronicled in Robert Turner's book, *Carrots Don't Grow on Trees: Building Sustainable and Resilient Communities* (Turner, 2019). The story begins in 2012 when Robert and Kara Turner purchased 10 acres of pastureland on which they started a small hobby farm with chickens and a vegetable garden. In 2015, their neighbor, with whom they had become close friends, let them know he might be looking to sell his 45-acre farm, which had been in his family for generations. Not wanting a "developer to come in and bulldoze it all for a bunch of tract housing (Turner 2019, p 80)," Robert and Kara offered to buy the land from their neighbor and ultimately did. As the north portion of this farm property bordered the southern part of the golf course community, the Turner's realized they could develop and sell lots on the ten acres which border the golf course to help offset some of the costs in purchasing the farmland. Looking out on wonderful views of the farm and the Blue Ridge mountains (Figure 10), the thought occurred that "this farm view could be a major selling

point to some types of people. Some people might want to live here because of the farm (Turner 2019, p 87).” Next, nearly six acres were set aside for an organic CSA program and a full-time farmer and an assistant were hired to run the farm and CSA.

Understanding that a premium could be charged for homes that look out over the farm and golf course, and are included within the confines of the Cliffs golf course and wellness community, an agreement was reached to develop and sell the lots within the Cliffs community. Described as a “win-win (p. 89)” for both sides, this arrangement allowed the Cliffs to protect the south side of their community from nuisances while Creekside Farms gained access to the golf and wellness amenities of Cliffs, as well as an already established marketplace to which they could sell their farm’s produce. The relationship has proven to be successful as CSA memberships were full within two days of the Cliffs emailing their residents asking if anyone wanted to sign up for the CSA within the community.

Another component of the Creekside Farm development is a focus on food education, access, and farmland preservation. An old red schoolhouse which previously existed on the site was purchased and has been rebranded as the Creekside Farm Education Center (Figure 9). This building includes a commercial kitchen and event space where cooking and canning classes are held as well as other large gatherings and events centered around food. The neighborhood partners with the local food bank, donating excess shares to them, as well as other non-profits focused on farmland preservation and food access which host events at the new education center.



Figure 12. South Village Neighborhood Diagram.

Location



Figure 13. South Village Location.

Quick Facts

Year Open	2009
Developer	Retrovest Companies (original) SD Ireland (current)
Total Size	220 acres
Housing	334 single-family homes, townhouses, and condos
Farm Size	12 acres
Farm Amenities	Working farm, community gardens
Sales Outlets	Farm stand
Farm Management	Common Roots
Management Type	Non-profit

Table 8. South Village Information.



Figure 14. South Village homes.



Figure 15. South Village farm

South Village Neighborhood Food System

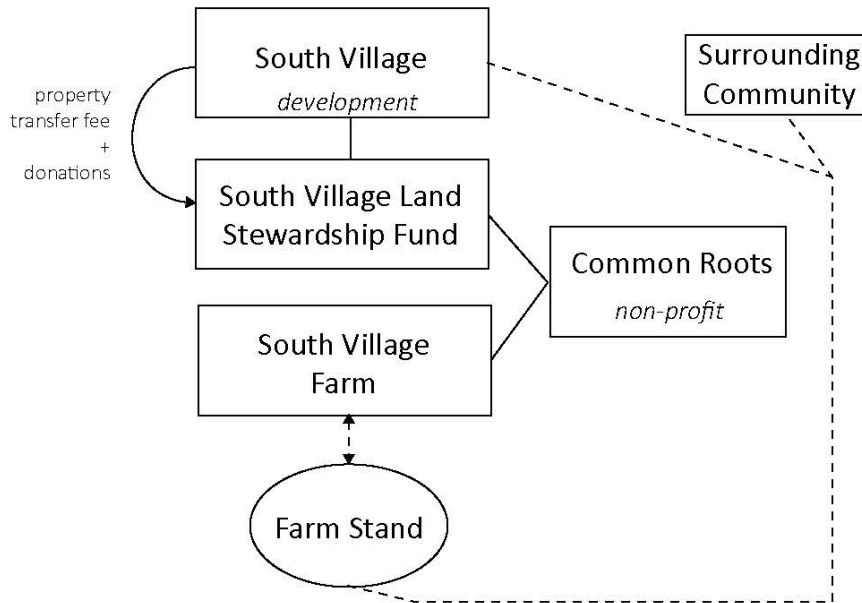


Figure 16. Business Structure for South Village Farm. The South Village Land Stewardship Fund, funded through a property transfer fee, owns and manages the conservation land and farmland within the neighborhood. Management of the farm is contracted out to Common Roots, a local non-profit, who runs the farm stand, selling produce from the farm to residents and surrounding community members alike.

Demographics

	Chittenden County	Census Tract
Age		
18-24 years old	16%	4%
25-34 years old	14%	7%
35-44 years old	12%	13%
45-54 years old	13%	18%
55-64 years old	13%	16%
65-74 years old	8%	10%
75 years or above	6%	9%
Household Income		
Less than \$25,000	18%	5%
\$25,000 to \$49,999	20%	7%
\$50,000 to \$99,999	31%	20%
\$100,000 to \$149,999	18%	27%
\$150,000 to \$199,999	7%	19%
\$200,000 or more	7%	22%
Median Income	\$ 66,906	\$ 136,599
Household Size		
1	29%	17%
2	39%	39%
3	14%	18%
4 or more	18%	27%

Table 9. Demographics Table for South Village Region. Data from U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimate.

South Village Description

South Village is located in South Burlington, Vermont, approximately 5 miles due south of downtown Burlington, Vermont (Figure 13). The neighborhood is located off of Spear Street, an important north-south thoroughfare, in a former hay field totaling 220 acres. South Village opened in 2009 and is currently entering phase 3 of the development (Figure 12). In total, the community is planned for 334 units, composed of single-family homes, townhouses and condominiums. South Village includes 130 acres of permanently conserved open space, a 12-acre working farm operated by a local non-profit and a community gardens for residents.

A case study by Kartez & Barringer (2009) chronicles the South Village development story for the New England Environmental Finance Center. South Village was developed by Retrovest Companies, Inc., after they were approached by the founder of a local non-profit focused on preserving local agriculture called the Intervale Foundation, who had become aware of the 220-acre abandoned farm parcel in South Burlington. With involvement from the Intervale Foundation from the onset, there was an opportunity to make housing and agriculture compatible, rather than the usual dichotomy of housing vs. farmland protection. Retrovest also believed this arrangement could help the approval process as the development model preserved farmland in a developing part of the town. The design process was underway in 2001 and included open space buffers for the 3 residential housing clusters, include 30 acres of farmland and 40 acres of preserved wetlands. South Village was designed in a ‘new urbanist’ style with limited setbacks, pedestrian-friendly streetscape, and open space for residents. This type and scale of project had not been seen in South Burlington and thus required updating to the

master plan and zoning code to approve the project, which also aligned with the city's mission of preserving farmland and providing quality housing.

The farm at South Village is leased to Common Roots, a local non-profit organization focused food education for the South Burlington community (Figure 16).

Common Roots grows organic vegetables at South Village which are made available to residents and to the public from a farmstand within the neighborhood open daily.

Residents can become members of the farmstand in advance of the season and get a slight discount by doing so. For example, members can pay \$300 for \$315 worth of produce at the beginning of the season. This helps with upfront costs associated with the farm and helps determine demand levels.

Aberlin Springs

Gilbert, AZ



Figure 17. Agritopia Neighborhood Diagram.

Location



Figure 18. Agritopia Location.

Quick Facts

Year Open	2005
Developer	Johnston and Co.
Total Size	165 acres
Housing	288 houses, 164 cottages, 320 apartments, 188 unit senior living
Farm Size	11 acres
Farm Amenities	Community gardens, orchard, working farm
Sales Outlets	CSA, farm store, on-site restaurants, community events
Farm Management	Johnston Family Foundation for Urban Agriculture
Management Type	Non-profit

Table 10. Agritopia Information.



Figure 19. Agritopia Farm.



Figure 20. Agritopia Homes.

Agritopia Neighborhood Food System

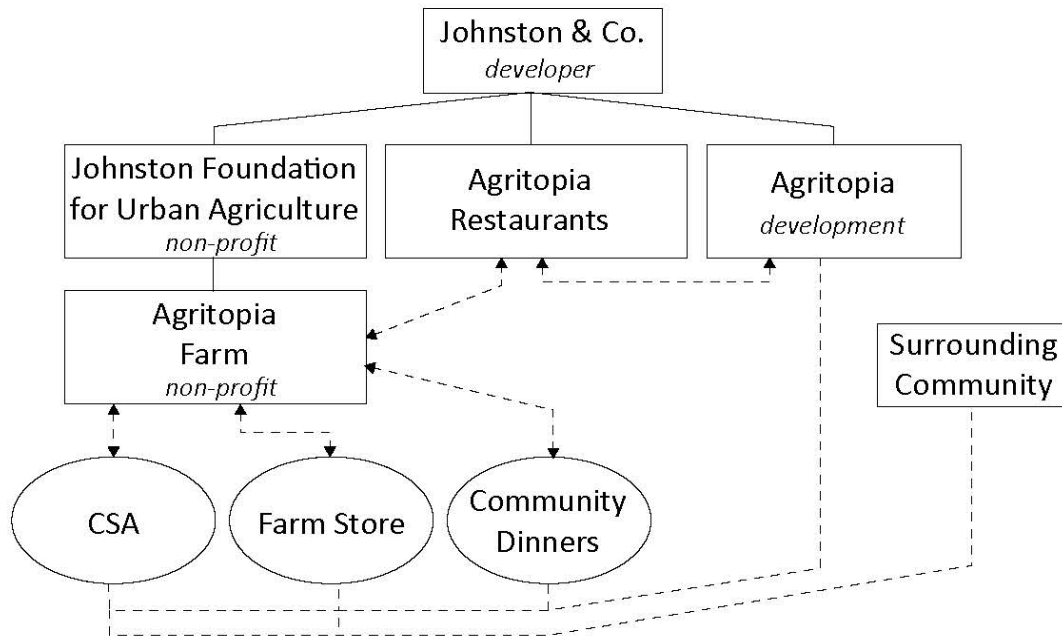


Figure 21. Business Structure for Agritopia Farm. The neighborhood developer also has developed on-site restaurants and manages a non-profit foundation which operates the farm.

Demographics

	Maricopa County	Census Tract	Survey
Age			
18-24 years old	13%	5%	0%
25-34 years old	19%	17%	9%
35-44 years old	18%	29%	36%
45-54 years old	17%	24%	30%
55-64 years old	15%	11%	21%
65-74 years old	11%	9%	3%
75 years or above	8%	5%	1%
Household Income			
Less than \$25,000	20%	7%	2%
\$25,000 to \$49,999	23%	22%	2%
\$50,000 to \$99,999	31%	30%	20%
\$100,000 to \$149,999	14%	21%	29%
\$150,000 to \$199,999	6%	9%	17%
\$200,000 or more	6%	11%	31%
Median Income	\$ 58,580	\$ 85,429	x
Household Size			
1	27%	16%	9%
2	34%	31%	20%
3	15%	20%	14%
4 or more	25%	33%	56%

Table 11. Demographics Table for Agritopia Region. Data from U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimate. Age percentages based on total above 18 population.

Agritopia Description

Agritopia is located in Gilbert, Arizona, a suburban community approximately 25 miles outside of Phoenix, Arizona (Figure 18). Developed by Johnston and Co. and opened in 2005, Agritopia is a 165-acre mixed-use neighborhood composed of single-family homes, a senior living facility, apartments, and commercial amenities such as restaurants and maker spaces. The agricultural amenities in the neighborhood include a 11-acre working farm, orchards, and community gardens (Figure 17). A case study by Buntin (2009) describes the unique development process for Agritopia.

Agritopia was founded by Joe Johnston, an entrepreneur whose family has owned and farmed the land that is now Agritopia since the 1960s. The Town of Gilbert was undergoing rapid development in the 1990s and a plan was developed for Loop 202, a highway, to go through the Johnston's farm. The family sold off portions of the land north of the proposed highways but retained the 160-acre portion that is now Agritopia. Joe Johnston sought to open a restaurant on the property that served local produce and seeing the exodus of farmers sparked an idea that maybe he could do all these things - both preserve local agriculture and develop a restaurant which utilized the produce. The idea for a neighborhood was sparked when they realized they could use the farm as an attraction for a new community, similar to the way in which many communities popping up around Phoenix at that time used a golf course as an attraction. The concept for Agritopia was hatched in the late 1990's, with construction beginning in 2001 and the neighborhood opening in 2005.

The design of Agritopia situates the farm amenities in the middle of the

community with homes radiating outward (Figure 17). A system of greenways and trails surround the community and connect residents to the farm and parks. Interview responses underscore some of the design elements of Agritopia, such as the de-emphasis of the car and the importance of pedestrian greenways. The design sought to flip the typical village concept, which situated agriculture on the outskirts of town, by bringing the farm right to the center of the village and making it an amenity for neighborhood residents. Another important aspect was the desire for Agritopia to be accessible for people of all ages and income levels, such that there are a variety of housing types. These include high end luxury homes with full backyards, clustered cottage homes which share a common space, senior living facility, and apartments.

The Agritopia Farm is managed by the Johnston Foundation for Urban Agriculture, a non-profit organization connected to the neighborhood developer, Johnston & Co. Agritopia Farm produces various row crop vegetables and sells produce through a CSA program and farm store (Figure 21). The farm provides food for community events and also sells to the restaurants within Agritopia, which were also developed by Johnston & Co. Residents from communities surrounding Agritopia are able to participate in the CSA and purchase food from the farm store. The farm receives no funding from resident fees or taxes and primarily relies on food sales to cover expenses.

Harvest Green

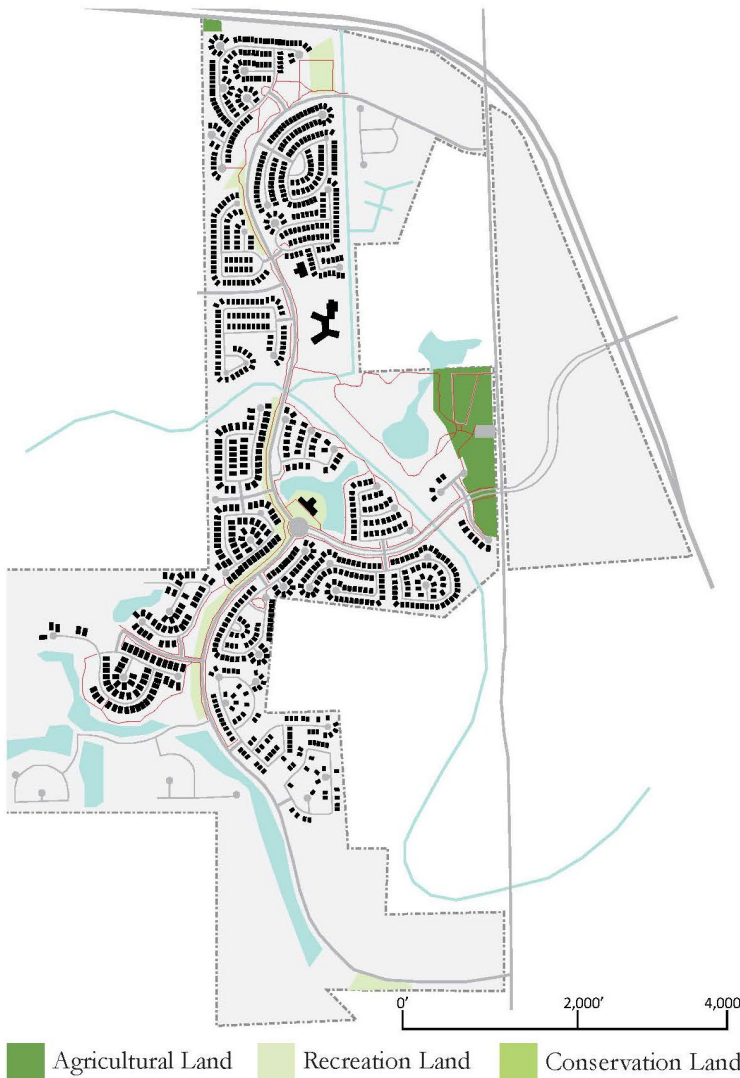


Figure 22. Harvest Green Neighborhood Diagram.

Quick Facts

Year Open	2015
Developer	Johnson Development Corp.
Total Size	~1,300 acres
Housing	2,134 single-family houses
Farm Size	12 acres
Farm Amenities	Production farm, community plots, edible landscaping, orchards, vineyard, chickens, goats
Sales Outlets	Neighborhood farmers market, local restaurants, community events
Farm Management	Owned by HOA, managed by Agmenity
Management Type	Contract

Table 12. Harvest Green Information.

Richmond, TX



Figure 23. Harvest Green Location.



Figure 24. Harvest Green Recreation Center



Figure 25. Harvest Green Homes.

Harvest Green Neighborhood Food System

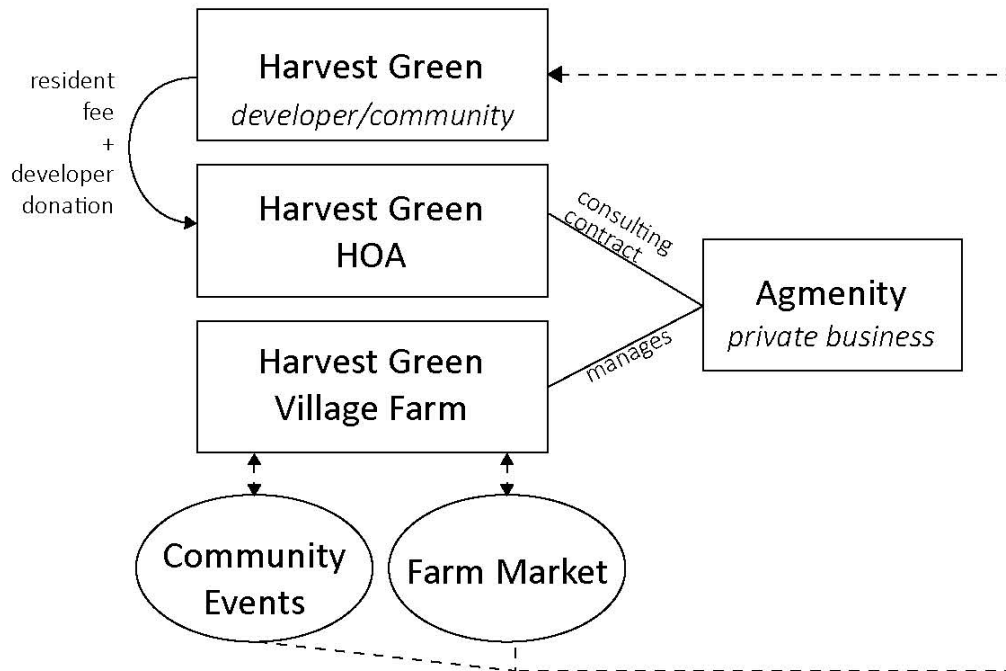


Figure 26. Business Structure for Harvest Green Farm. The Harvest Green HOA, funded by resident fees, owns the farm and contracts out management of the farm to Agmenity, a private business. The developer installs initial farm infrastructure and donates to the HOA. Income from food sales is returned to HOA.

Demographics

	Fort Bend County	Census Tract	Survey
Age			
18-24 years old	12%	10%	0%
25-34 years old	17%	15%	21%
35-44 years old	21%	11%	53%
45-54 years old	20%	24%	16%
55-64 years old	17%	24%	11%
65-74 years old	9%	11%	0%
75 years or above	5%	4%	0%
Household Income			
Less than \$25,000	10%	8%	0%
\$25,000 to \$49,999	15%	8%	0%
\$50,000 to \$99,999	28%	26%	9%
\$100,000 to \$149,999	21%	21%	6%
\$150,000 to \$199,999	11%	16%	46%
\$200,000 or more	15%	21%	40%
Median Income	\$ 93,645	\$ 85,429	x
Household Size			
1	23%	15%	2%
2	47%	29%	20%
3	8%	20%	23%
4 or more	22%	36%	55%

Table 13. Demographics Table for Harvest Green Region. Data from U.S. Census Bureau 2013-2017 American Community Survey 5-Year Estimate. Age percentages based on total above 18 population.

Harvest Green Description

Harvest Green is located in Richmond, TX, a suburban community approximately 27 miles east of Houston (Figure 23). Developed by Johnson Development Corporation, Harvest Green, opened in 2005, is approximately 1,300 acres in size with plans for roughly 2,600 single-family homes. The neighborhood is nestled between the Route 99, a major thoroughfare running in a loop around Houston, and existing master-planned suburban communities of Greater Houston. Two public schools are located in the community, Travis High School, which existed prior to development, and Neill Elementary which was developed along with Harvest Green (Figure 22).

Harvest Green is one contiguous parcel, running around 2 miles north to south and three quarters of a mile wide east to west. Homes are close together and on small lots, less than a quarter of an acre but there is abundant open space in the community. Harvest Green includes 30 acres of lakes and waterways, 280 acres of greenbelts and open space, 50 acres of parks, and a network of trails connecting the community. The agricultural amenities in Harvest Green include the 12-acre Village Farm, edible landscaping throughout the neighborhood, and community garden plots available for residents.

Village Farm at Harvest Green consists of fields and a greenhouse and produces vegetables, as well as raising goats and chickens. The farm is located at the entrance of Harvest Green, surrounding the model home park, but is separated from the dense residential part of the neighborhood by a lake and stream. The farm and edible landscaping at Agritopia is managed by Agmenity, a company which, according to their website, “designs, installs, and manages agricultural amenities for homeowner’s

associations and developers (*Agmenity*, 2020).” The farm is owned by the Harvest Green HOA, which is funded by residents’ dues, who has contracted out management to Agmenity. In this arrangement, Agmenity operates the neighborhood farm store and income received through produce sales goes to covering their expenses, mostly labor and equipment. As part of their contract and a core part of their company, Agmenity runs farm events to help the community engage with the farm (Figure 26).

Willowsford



Figure 27. Willowsford Neighborhood Diagram.

Quick Facts

Year Open	2011
Developer	Corbelis Management LLC
Total Size	4,125 acres
Housing	2,195 homes
Farm Size	300 acres
Farm Amenities	Community gardens, orchard, working farm, pasture
Sales Outlets	CSA, farm store, community events, local farmers markets
Farm Management	Willowsford Conservancy
Management Type	Non-profit

Table 14. Willowsford Information.

Loudoun County, VA



Figure 28. Willowsford Location.



Figure 29. Willowsford Homes.



Figure 30. Willowsford Farm Store.

Willowsford Neighborhood Food System

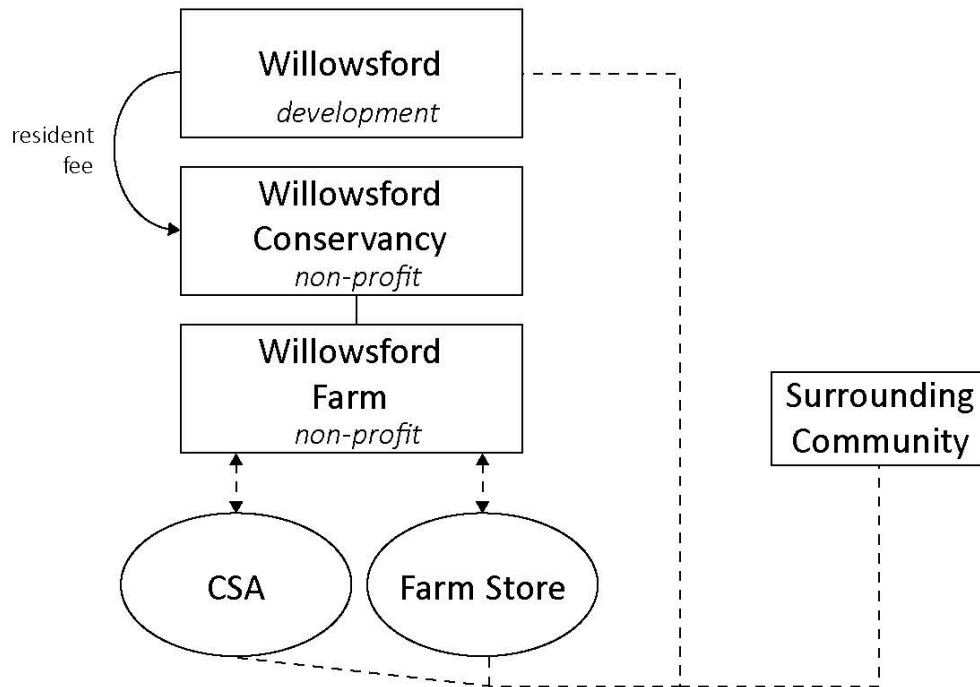


Figure 31. Business Structure for Willowsford Farm. The Willowsford Conservancy, funded by resident fees, owns and operates the farm as a non-profit, selling produce through a CSA program and farm store.

Demographics

	Loudoun County	Census Tract 6110.24	Census Tract 6118.06	Survey
Age				
18-24 years old	10%	7%	9%	0%
25-34 years old	18%	13%	17%	7%
35-44 years old	25%	35%	35%	49%
45-54 years old	22%	22%	20%	29%
55-64 years old	14%	13%	13%	9%
65-74 years old	7%	6%	5%	4%
75 years or above	4%	4%	1%	0%
Household Income				
Less than \$25,000	5%	0%	1%	1%
\$25,000 to \$49,999	9%	2%	2%	0%
\$50,000 to \$99,999	21%	9%	16%	1%
\$100,000 to \$149,999	23%	16%	25%	4%
\$150,000 to \$199,999	17%	15%	26%	18%
\$200,000 or more	25%	58%	31%	78%
Median Income	\$ 129,588	\$ 220,114	\$ 158,939	x
Household Size				
1	22.8%	7%	10%	0%
2	38.8%	20%	22%	19%
3	14.4%	17%	23%	16%
4 or more	24.0%	56%	45%	64%

Table 15. Demographics Table for Willowsford Region. Data from U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimate. Age percentages based on total above 18 population.

Willowsford Description

Willowsford is located in Loudon County, VA, a suburban community around 35 miles west of Washington D.C. and ten miles from Dulles Airport (Figure 28). Corbelis Management LLC, a national development firm, managed the development of the neighborhood which opened in 2011. Willowsford is a master-planned community spanning 4,125 acres, consisting of entirely single-family homes, of which there are 2,195 planned. The development is non-contiguous as it is composed of four different sections, held together by common branding, aesthetics, and recreational amenities. The agricultural amenities of Willowsford include 300 acres of farm and pastureland, orchards, and community gardens for residents (Figure 27).

The land that was to become Willowsford is owned by Rockpoint Group LLC., a real estate equity firm, who took ownership of the property in 2009 as the Great Recession was ending. The property is located in the “transition zone” between suburban and rural character, as deemed by Loudoun County, limiting development to one unit for every one to three acres. Corbelis was selected as the developer responsible for planning and constructing the project, who decided to “develop a bold new concept that would reshape the market and instill buyer confidence even in the tepid real estate environment (Urban Land Institute, 2013, p. 2)” of the housing recession. The developer moved forward with a plan that consisted of single-family homes and preserved more than half the land in open space for agricultural and recreation.

Willowsford is split into four villages called, the Grant, the Grange, the Greens,

and the Grove, each of which contains numerous recreational and agricultural amenities, as well as abundant conservation land. In general, the agricultural amenities are pushed to the outskirts of each village. The Grant contains a roughly 20-acre farm parcel to the southern extreme of the village, The Grange contains nearly 30 acres of farmland as well as the CSA pickup and farm store location, The Grove contains 24-acres of fallow farmland to the northern extreme of the village, and The Greens includes a nearly 150 acre farm parcel for pasture land along the western edge, separated from the village by a road. In total, 45 miles of interconnected trails connect the community, including wooded hiking trails and paved pathways along the roads. There is no commercial or retail amenities in Willowsford, besides the farms store, but there are numerous parks, pools, lakes, and recreation centers.

Willowsford Farm is managed by the Willowsford Conservancy, a non-profit organization responsible for maintaining the over 2,000 acres of open space in the community, including conservation land and farmland (Figure 31). The Conservancy is separate from the HOA, which is responsible for maintaining landscape and streetscape elements in the community. The Conservancy receives funding through a resident fee, and, as a non-profit, can receive money through grants. Willowsford Farm, totaling over 250 acres, produces many varieties of vegetables, raises free-range chickens, goats, pigs, and bees and sells through a CSA program and a farm stand. Income received through farm sales goes back into the farm to cover expenses, such as equipment and labor.

Case Study Communities Synthesis

The case study analysis of six agrihoods provides insight into the physical characteristics, the location, the history, and the management structures of agrihoods around the country. The six agrihoods include the three at which the resident survey was administered – Willowsford, Harvest Green, and Agritopia – and three additional communities - Creekside Farm, Aberlin Springs, and South Village. The six vary in geographic location around the United States, with Arizona, Texas, North Carolina, Virginia, Ohio, and Vermont all represented in the six agrihoods. Comparing and contrasting the agrihoods on their physical characteristics, locations, history, and farm management structures can provide insight into the variation and commonalities amongst agrihoods and shed light on how these nuanced differences impact resident engagement with and overall success of the neighborhood food system.

Development History

Looking into the history of the six agrihoods, each one was developed on land that had previously been used in agriculture. Despite the six agrihoods all being developed on former agricultural land, the impetus for incorporating agriculture into the development differed amongst the communities. Three of the agrihoods were developed by outside companies who purchased the land with the intent of building a master-planned community – those being Willowsford, South Village, and Harvest Green. In the case of Willowsford and Harvest Green, the agricultural components were seen as a means of differentiating their community from the competition by offering a unique amenity in the form of farms and gardens. The integration of a farm at South Village was done to preserve farmland in conjunction with a local non-profit.

The remaining three agrihoods all were developed by the owner of the farmland at the time. Two of the communities – Agritopia and Aberlin Springs – were developed by a member of the family which owned the farm in an effort to salvage some of the family’s farmland while also building a community. Lastly, Creekside Farms was developed by the owner of the land, but the developer was not a member of the family who owned the land, he bought his neighbor’s farm in order to save the land from extensive development.

Agrihood Size, Density, and Layout

The six agrihood case study communities vary in total size, number of units, and the amount of acreage dedicated for the working farm and non-agricultural open space (Table 2). Willowsford is the largest community by far, encompassing a total of 4,125 acres, 300 of which are farmland, and is planned for 2,195 single-family homes. On the contrary, Creekside Farm is the smallest community, with 20 acres total, a 6-acre farm, and is planned for 18 single-family homes. The amount of developed acres for each community was calculated by subtracting the amount of farmland and non-agricultural public recreation and conservation land from the total acreage.

The net density is a measurement of the number of developed acres per unit in the community. Agritopia is the densest community, with just over a tenth of an acre per unit. This includes a senior living facility, cottage-style homes, and a mixed-use building with apartments having just broken ground but included in this analysis. Willowsford is the least dense community with over 1.8 acres per unit.

This information can be used to draw comparisons between the communities on their density and percentage of the community dedicated to the working farm. Aberlin

Springs has the highest percentage of acreage dedicated to farmland at 35%, with Creekside Farm close behind with 30%. All the other communities have less than 12% of their total acreage in farmland. Aberlin Springs and Creekside Farm also have the highest ratio of farms acre per unit, with roughly a third of an acre of farmland per unit. This is over thirty times more farmland per unit than Harvest Green, where there is roughly a hundredth of an acre of farmland per unit.

	Total Acres	Farm Acres	Open Space Acres	Developed Acres	Total Units	Gross Density (acres/unit)	Net Density (Dev acres/unit)	Farm Acres per Unit	% of Total Acreage in Farm
Aberlin Springs	142	50	48	44	138	1.03	0.32	0.36	35%
Creekside Farm	20	6	0	14	18	1.11	0.78	0.33	30%
South Village	220	12	118	90	334	0.66	0.27	0.04	5%
Agritopia	165	20	38	107	960	0.17	0.11	0.02	12%
Harvest Green	1,300	12	330	958	2,134	0.61	0.45	0.01	1%
Willowsford	4,125	300	1,763	2,062	2,195	1.88	0.94	0.14	7%

Table 16. Agrihood Size and Density Comparisons

Agricultural Easements

The manner and extent to which agricultural land in each agrihood is protected, or not protected, from development varies within the six agrihoods studied. Agricultural easements are deed restrictions which landowners can place on their property to protect important resources by limiting certain activities on the land. Agricultural easements are designed to keep land available for farming by limiting development and subdivision and are passed on to subsequent landowners. The benefits of an agricultural easement include several tax benefits including income, estate, and property tax reductions for the farm

owner, while also keeping important farmland in production (American Farmland Trust, 2016). Protecting farmland is an important goal for many states and municipalities and, as the agrihood trend grows, officials may consider the role of agricultural easements in ensuring that farmland within agrihoods is permanently protected. However, developers may be concerned about permanence of the easement and the extent to which it limits flexibility in future land-use decisions.

	Description of Farm Protection	Permanent Protection as Open Space or Agriculture?
Aberlin Springs	Agricultural easement	Yes
Creeskide Farm	Voluntary Agricultural district	No
South Village	Conservation easement	Yes
Agritopia	No protection	No
Harvest Green	Deed-restricted as open space	Yes
Willowsford	Conservation easement	Yes

Table 17. Farm Protection Methods by Agrihood

Interviewees discussed the role of agricultural easements and farmland protection in general in their agrihoods. Four out of the six case study communities utilize a land protection method which will preserve the farmland as either open space or agriculture in perpetuity (Table 3). Aberlin Springs employs an agricultural easement to protect the farmland and was required to do so because there is septic co-located on the farmland, so the HOA was required to carry an easement on that land. The farmland at Creeskide Farm has been placed in voluntary agricultural district which protects the land for ten years. Creeskide Farm also uses present-use value on the farmland, which is a deferred tax program allowing the land to be taxed as farmland, not at fair-market value (Malloy & Jones, 2017). This is not a permanent designation but provides agrihood developers with a means to reduce taxes associated with the farmland while also maintain flexibility.

South Village and Willowsford placed conservation easements on their agricultural land and conservation land. The exact specification of the easements were not discussed, notably the provisions of whether the farmland needs to remain in agriculture or just needs to be preserved as open space. The farmland at Harvest Green is not under protection by an easement but is deed-restricted, meaning, as part of the permitting process, the developers were required to keep a certain portion of the land undeveloped. The farmland sits in this category but could still be converted to recreation land but is restricted from being developed with buildings. Lastly, Agritopia does not employ measures to protect the farmland other than a majority vote by board members to determine the land-use for the farmland area.

Agrihood Food System and Management Structure

The farm management structure employed in each agrihood describes the relationship of the various actors involved in the neighborhood food system, with a focus on tracking the flow of money and food within the agrihood and to the surrounding community. An analysis of the farm management structures in each agrihood indicated that there were nearly as many farm management structures as there were agrihoods studied (Table 6). The variations are all similar in the sense that an entity closely related to the developer or the development, whether it be the HOA, neighborhood conservancy, neighborhood farm market, or affiliated non-profit, owns the farmland itself. In none of the agrihoods studied did an outside entity, such as a private farmer, own the land. However, the entity which managed the farm, sales outlets, and programming differed within each farm as did the relationship between the managing entity and the farm owner.

	Farmland Owner	Farmland Management	All Residents Pay Fee to Support Farm?
Aberlin Springs	Neighborhood Farm Market	Private Farm Enterprises	Yes
Creekside Farm	Developer	Developer	No
South Village	Neighborhood Conservancy	Local Non-Profit	Yes
Agritopia	Affiliated Non-Profit	Affiliated Non-Profit	No
Harvest Green	HOA	Farm Amenity Management Company	Yes
Willowsford	Neighborhood Conservancy	Neighborhood Conservancy	Yes

Table 18. Agrihood Management Structure

Willowsford and South Village each employ a similar farm ownership system, where a neighborhood conservancy was established at the onset of the development and is supported by a resident fee. As both communities contain a significant amount of protected conservation land and agricultural land, they have a strong focus on stewardship and land management. However, where they differ is that Willowsford Conservancy also manages the Willowsford Farm, directly employing the farm staff and incorporating the farm into the rest of the Conservancy programming. Management of the farm at South Village is contracted out by the South Village Land Stewardship Fund to a local food education non-profit, Common Roots, who manages the farm and farm stand. In both instances, the farm entity has a guaranteed funding source from residents themselves, separate from revenue from food sales, to maintain the farm.

Aberlin Springs is another community where residents are required to pay into the farm. Though early in development stages, the structure laid out for Aberlin Springs is that residents are required to pay an upfront CSA membership fee, a structure comparable

to being a member of a golf course or wellness amenity, and there is a property transfer fee which supports the farm. Residents receive an equivalent value in food products as they paid for their CSA membership from the neighborhood farm market. The revenue from membership fees allows the development to lease out land to private farm enterprises and guarantee them a portion of the membership fees to supply the neighborhood farm market. The private farm enterprises are also able to sell their products outside of the community as long as they first meet the demands of the neighborhood farm market. The farm market, in conjunction with the HOA, is then able to put on events and classes for residents which showcase the neighborhood food, such as cooking classes and dinners.

The HOA at Harvest Green owns the Village Farm in the neighborhood and contracts out management to a private business, Agmenity. While resident fees support the HOA itself, this management structure allows the HOA to avoid management of the farm, and also may, in some instances, provide a source of income. Agmenity, the entity contracted out for management of the Village Farm, is a unique business whose focus is on designing, installing, and managing agricultural amenities. This focus includes a multitude of responsibilities, such as community programming, education events, outreach, in addition to managing the farm and sales outlets. Such a model allows a private business to take on all aspects of the agrihood farm management, allowing the HOA and developer to focus on other responsibilities.

Finally, the last two communities, Creekside Farm and Agritopia, are run very differently. Neither have a guaranteed cash flow from residents to the farm entity. Creekside Farm is a small development planned for 18 homes which is adjacent to an

established gated golf-course community. Creekside Farm includes a 6-acre production garden, owned and managed by the developer, which operates a CSA for residents of the surrounding region – especially residents at the golf course community. There is no resident fee or tax that goes towards supporting the farm and the operation is reliant on CSA membership fees.

Agritopia is a larger and more established agrihood, developed by the farm family who owned the land for generations. Since the inception of Agritopia, no fees or taxes were charged to residents to support the farm. HOA fees are collected, but the HOA does not own or manage the farm. Instead, the Farm at Agritopia is owned and managed by the Johnston Foundation for Urban Agriculture (JFUA), which is run by the Johnston family, who are the developers of Agritopia and the restaurants within the neighborhood. In this way, the Johnston family has set up a food system within the neighborhood where demand for food at the restaurants in the neighborhood supports the farm in the neighborhood. While CSA membership and farm store visitation appears to be low based on survey response data, both outlets are open to the surrounding community and have been successful. The restaurants at Agritopia are a major source of demand for the food produced at neighborhood farm.

Resident Survey

A total of 388 survey responses were received out of an estimated 3,225 households which were asked to take the survey for an estimated response rate of 12% (Table 19). Agritopia had the highest response rate of 34%, however, the most responses came from Willowsford, from which 218 households responded to the survey. For each agrihood, the development team either emailed residents or posted the survey to a private

neighborhood Facebook group, asking households to respond to the survey. Surveys were sent to residents between December 3 to December 30, 2019 and the survey was closed for all communities on January 24, 2020.

	Estimated # Responses	# Households Received Survey	Estimated Response Rate	Date Survey Sent	Date Survey Closed
Willowsford	218	1,850	12%	12/30/19	1/24/20
Agritopia	128	375	34%	12/17/19	1/24/20
Harvest Green	42	1,000	4%	12/3/19	1/24/20
Total	388	3,225	12%		

Table 19. Survey Response Summary

Demographics

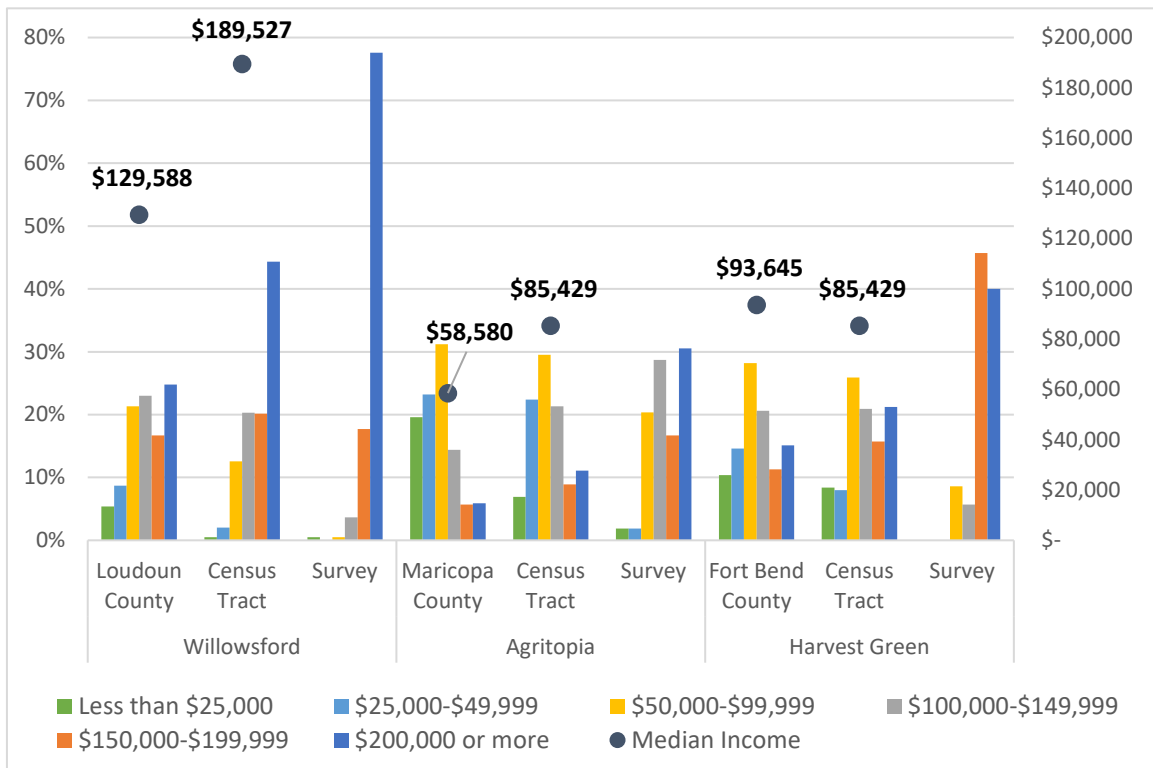


Figure 32. Household Income by Agrihood and Surrounding Region

A demographic analysis of survey respondents compared to their surrounding census tract and county highlighted how the residents of the three agrihoods differ from one another as well as from their surrounding region in terms of age, income, and household size. Willowsford encompasses two census tracts, so the information provided is an average of the two census tracts. Respondents at all three agrihoods were wealthier, a greater proportion were middle-aged, and respondents had a larger household size than

While each agrihood did have a small percentage of respondents who reported a household income lower than their counties' median, overwhelmingly, agrihood residents are affluent (Figure 32). At Harvest Green and Willowsford, 86% and 96% of respondents reported a household income of more than \$150,000. Agritopia had the greatest distribution of household incomes amongst respondents, with nearly as many respondents reporting a household income of \$149,999 or less as those that make more. However, it should be noted that Maricopa County, in which Agritopia is located, has a much lower median household income than Fort Bend County and Loudoun County, the latter of which has the highest median household income of any county in the country.

The three agrihoods surveyed seem to consist largely of young families, evident in the survey demographic results where respondents reported larger household sizes and a greater proportion of middle-aged residents than the surrounding region. Between 70% and 80% of respondents in each agrihood reported a household size of greater than two, which was higher than the surrounding census tract and county for each community (Figure 33). Each agrihood is also located in a census tract with a higher percentage of households with 2 or more people compared to the surrounding county. Respondents at

each community are generally middle-aged (between 35-54) and a greater proportion of respondents are middle-aged compared to the surrounding county and census tract in each community (Figure 34).

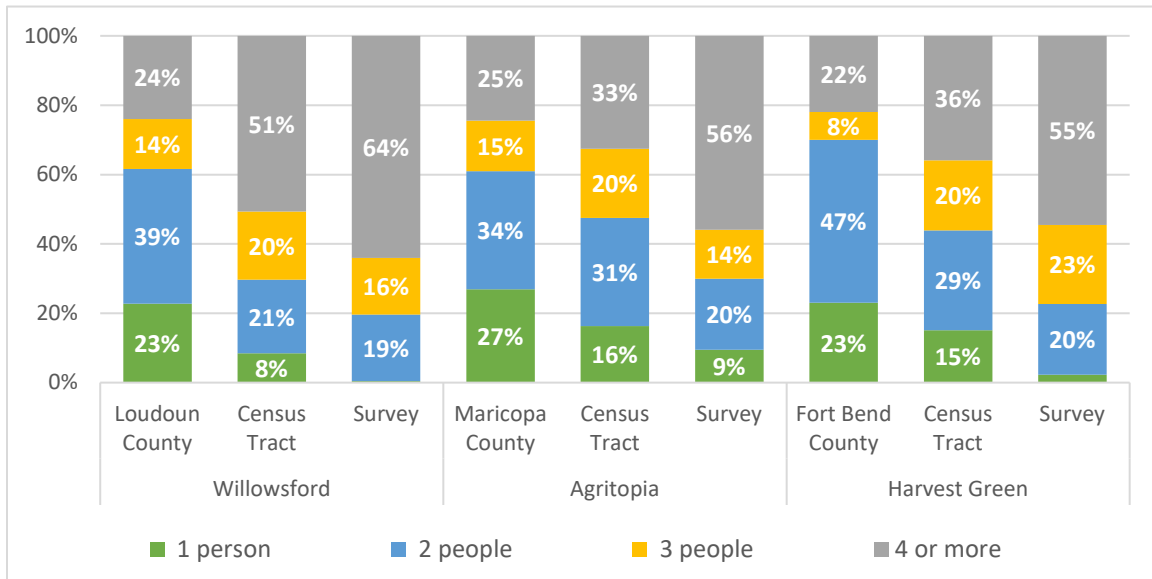


Figure 333. Household Size by Agrihood and Surrounding Region

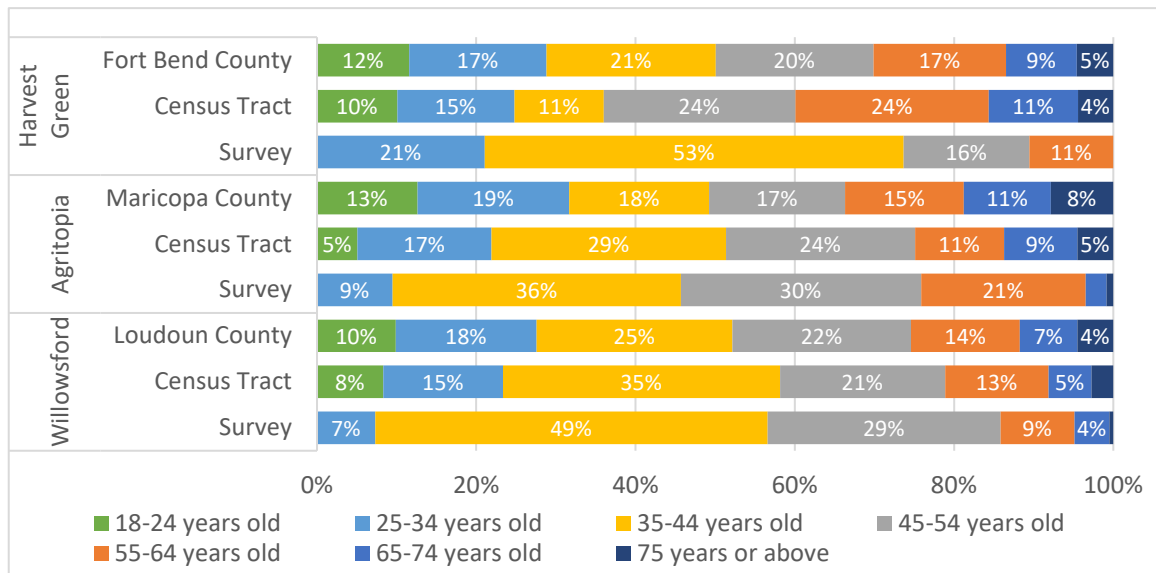


Figure 34. Age Distribution by Agrihood and Surrounding Region

Most respondents at each agrihood identified as female (Figure 36), likely a result of the fact that more women within households provided their email address to the

development team and thus, received the survey. The proportion of female to male indicated by the survey results (Figure 36) at each agrihood is 59:40 at Willowsford, where 1% of respondents identified as non-binary, 64:36 at Agritopia, and 72:28 at Harvest Green.

Most respondents at each agrihood indicated they are employed and go to work outside of the community or work from home (Figure 35). More respondents work outside the community than work from home, with 67%, 61%, and 76% of respondents indicating they work outside of the community at Willowsford, Harvest Green, and Agritopia respectively. Each agrihood had roughly the same number of respondents who are retired or indicating they were not working, with about 10% not working and 5% retired.

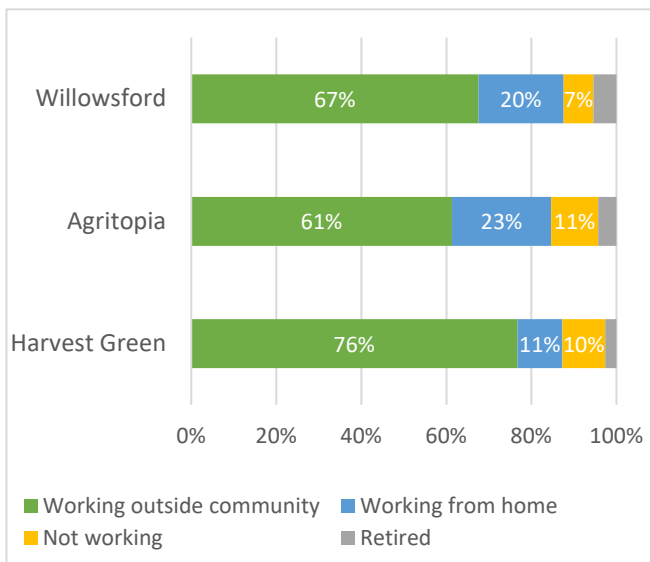


Figure 34. Employment Status of Survey Respondents by Agrihood

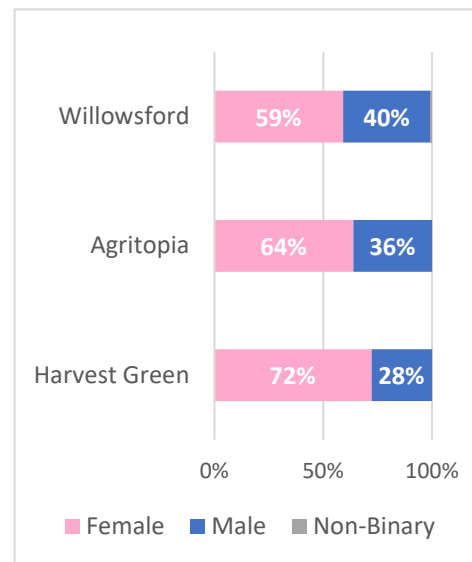


Figure 35. Gender Ratio of Survey Respondents by Agrihood

Neighborhood Satisfaction and Attachment

Across all three of the surveyed neighborhoods, respondents reported high levels of attachment to and satisfaction with their neighborhood (Figure 37). Respondents in all three neighborhoods, on average, reported agreeing between ‘somewhat’ and ‘strongly’ that they had a strong attachment to their neighborhood and that their neighborhood had a pleasing ambiance, indicated by a mean between 4 and 5 for each question.

Willowsford respondents indicated the strongest agreement with their neighborhood having a pleasing ambiance, with a result of 4.74 compared to 4.69 and 4.32 for Agritopia and Harvest Green. Agritopia respondents reported the strongest attachment to their neighborhood, with a result of 4.28 compared to 4.1 and 4.10 for Willowsford and Harvest Green. Overall, the statement with the least agreement for each community was ‘I have many friends in my neighborhood,’ however, all communities were above 3.7, indicating respondents agreed with the statement, just not strongly.

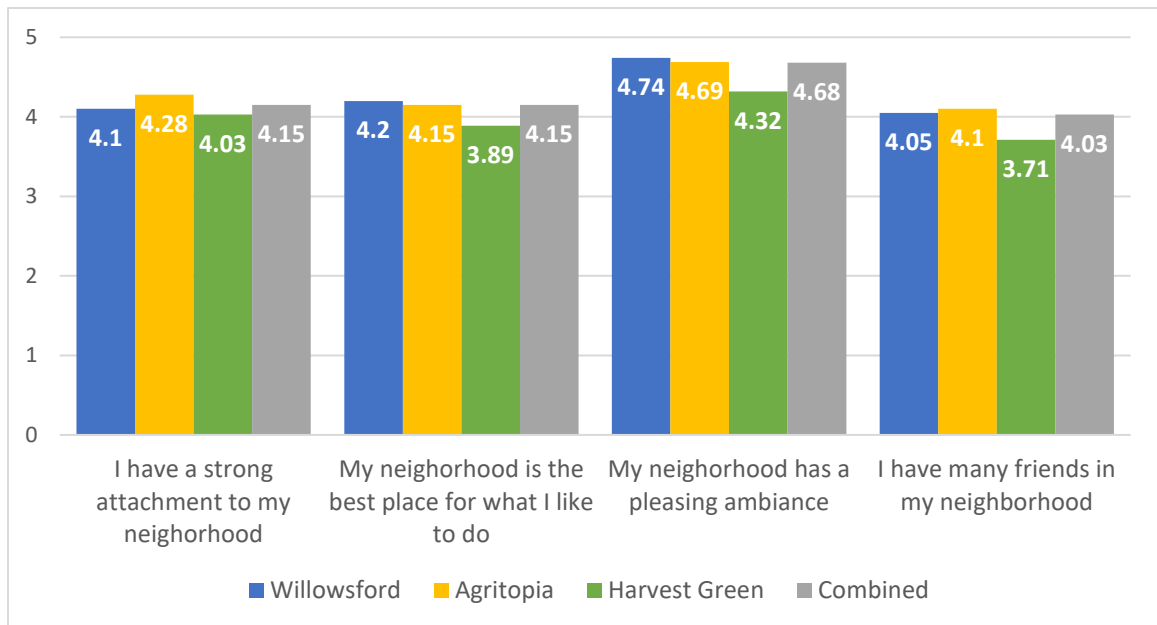


Figure 36. Survey Results of Neighborhood Satisfaction and Place Attachment by Agrihood

Motivation for Moving

The character/feel of the community was the most important motivator for respondents deciding to move into their agrihood across all three communities, with a result of 4.5 or above for each community, indicating strong agreement (Figure 38). The opportunity to work on the farm was the least important motivator for respondents in each community, with a combined result of 1.81, which is below 'slightly important'. Looking at the combined results, the second most important motivator were the community events and gatherings, followed by the presence of farms and gardens, and then access to locally grown food. So, while the community events and gatherings may include some agricultural-related programming, overall, the agricultural amenities were viewed as less important of a motivator than the character of the community and the events and gatherings. The same held true for each agrihood except Harvest Green, where the presence of farms and gardens was viewed as more important than the events and gatherings. The presence of farms and gardens was also viewed as slightly more important than access to local food by respondents, with a result of 3.59 compared to 3.26. The access to local food was ranked especially low for respondents from Agritopia, with a result of 2.79.

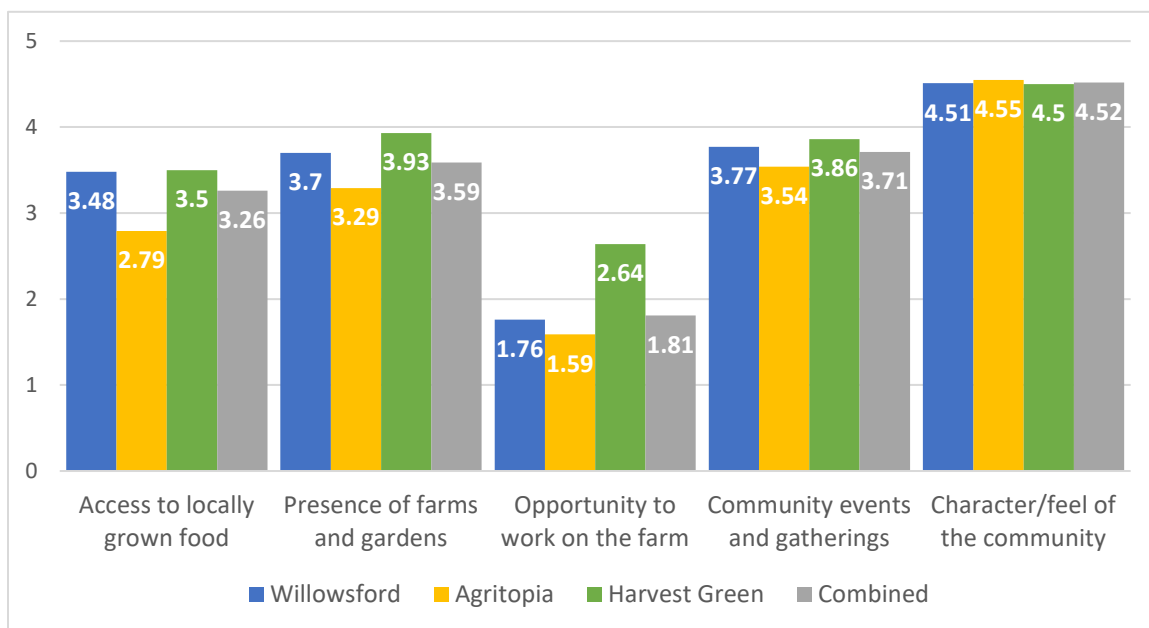


Figure 37. Motivations for Moving by Agrihood

Local Food Purchasing

Survey results indicate that purchasing of neighborhood-produced food by residents is not the norm or quite low depending on the agrihood and sales outlet. Of the CSA programs, Willowsford boasted the highest level of participation from respondents at 46%, while Harvest Green was 19%, and Agritopia was 16% (Figure 40). In fact, the CSA program at Harvest Green has been suspended in the past year due to a lack of interest according to interview correspondence with a farm representative. Each agrihood surveyed also has a farm stand or farm market which sells local produce and respondents were asked about the frequency with which they visit their neighborhood farm store. Regular shopping at the farm store (at least once a month) was highest at Harvest Green, with 48% of respondents indicating they do so, compared to 32% at Agritopia and 44% at Willowsford (Figure 39). Regular shopping at the farm store was higher than CSA

membership across all neighborhoods, except Willowsford, where 43% of respondents regularly shopped at the farm store versus 55% of respondents who were CSA members.

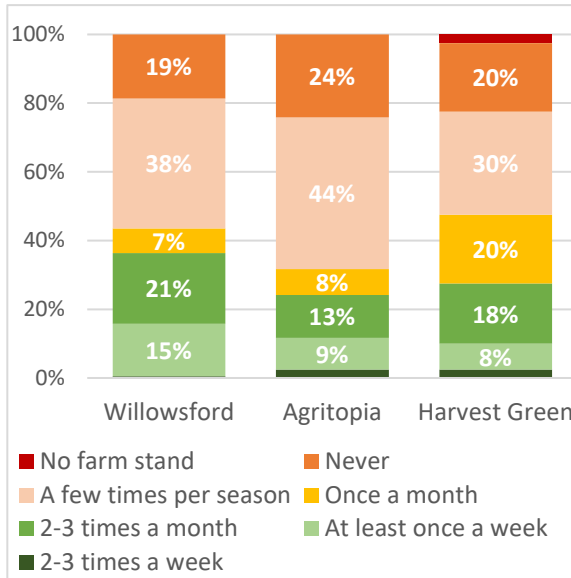


Figure 38. Farm Stand Visitation by Agrihood

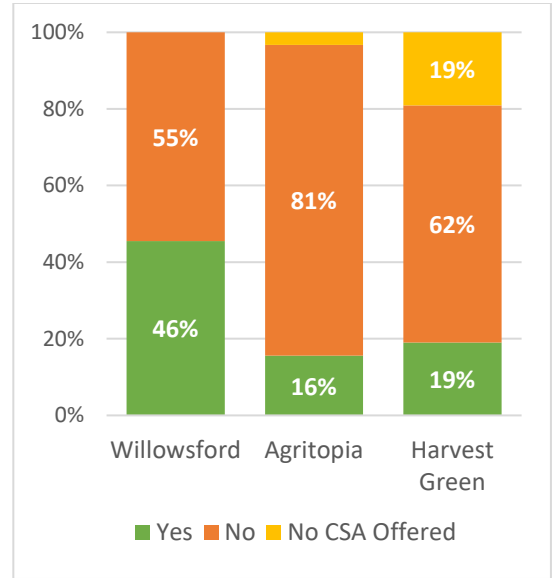


Figure 39. CSA Membership by Agrihood

Barriers to Local Food Purchasing

The biggest barriers to farm store visitation and CSA membership generally differed from one another and between neighborhood, however, there were similarities as well. The barriers to CSA membership were similar across all three neighborhoods, with the most respondents in each agrihood indicating membership was too expensive, thus cost was the biggest barrier (Figure 41). However, for farm store visitation, the biggest barriers differed across communities, with convenience the biggest barrier in Willowsford and the lack of options the biggest barrier in both Agritopia and Harvest Green (Figure 42).

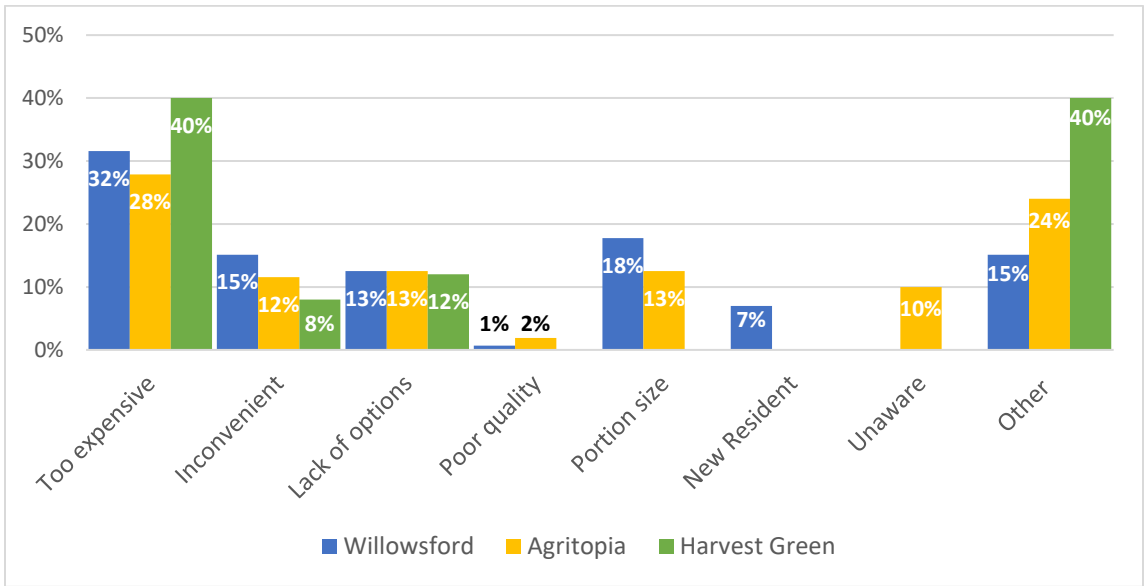


Figure 40. Barriers to CSA Membership by Agrihood

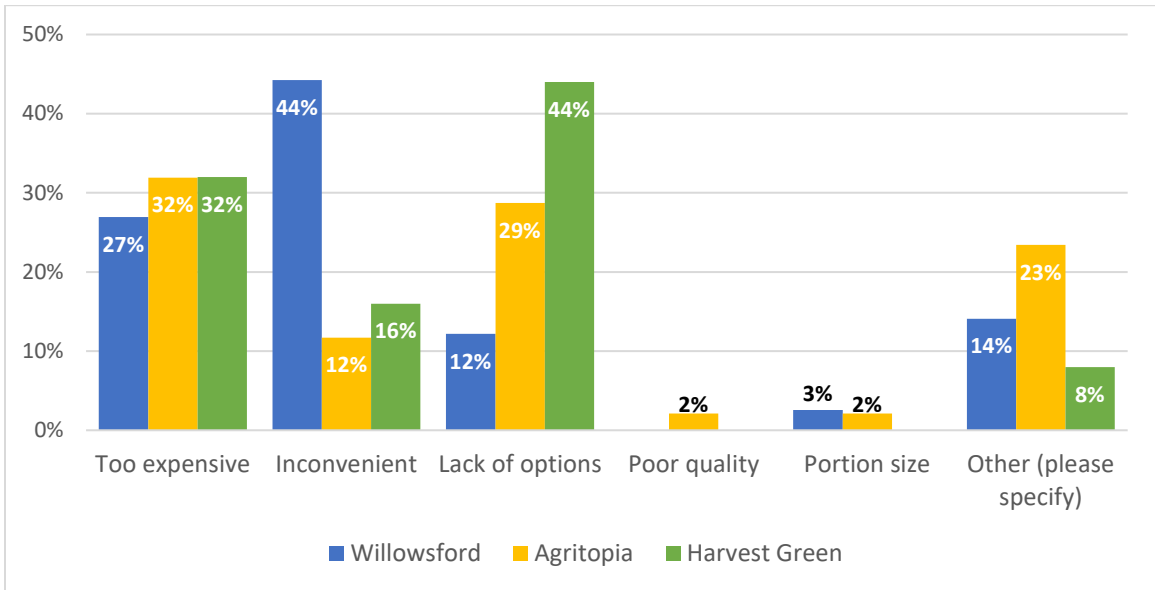


Figure 41. Barriers to Farm Store Visitation by Agrihood

Motivations for Local Food Purchasing

In contrast to the biggest barriers, the most important motivators for CSA membership and farm store visitation highlight the reasons why respondent did choose to

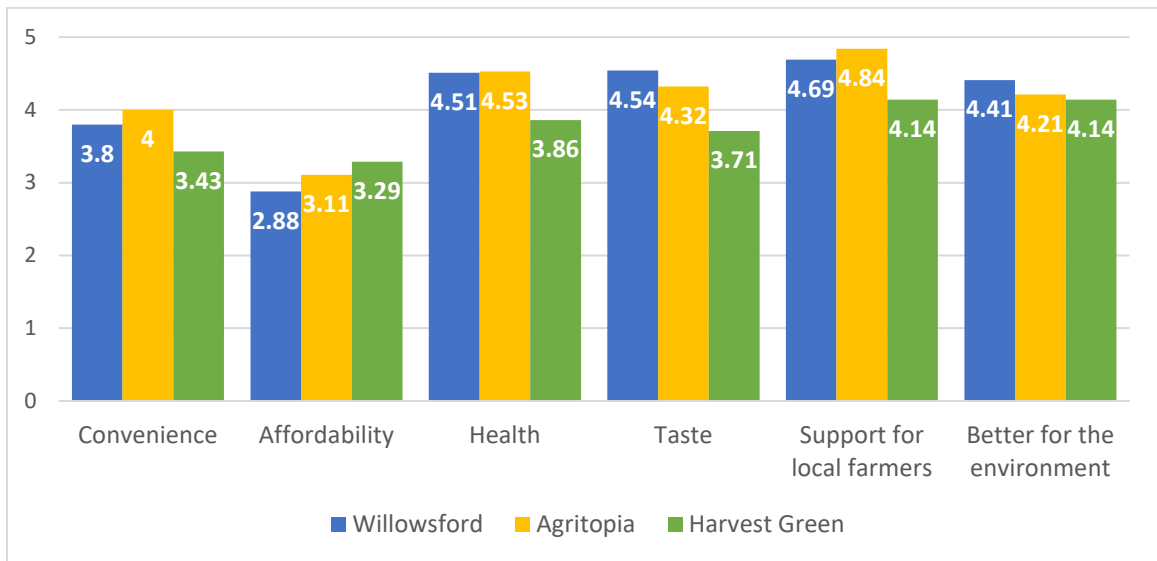


Figure 42. Motivations for CSA Membership by Agrihood

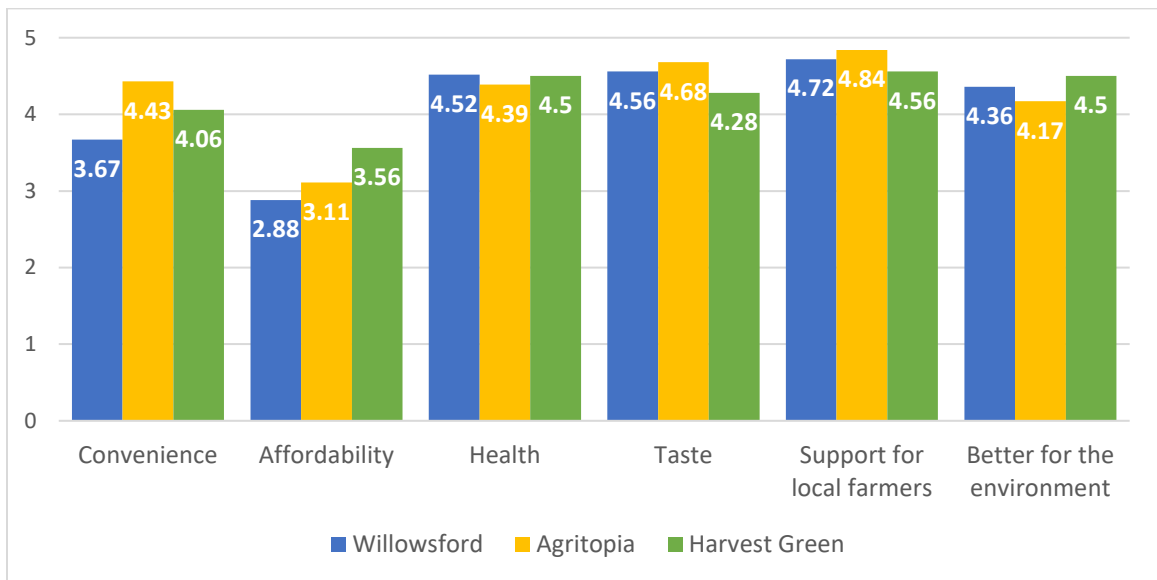


Figure 43. Motivations for Farm Store Visitation by Agrihood

purchase neighborhood-produced food. Across all three agrihoods and both sales outlets, supporting local farmers was the most important motivator for purchasing neighborhood-produced food (Figures 43 and 44). Health and taste were also important motivators for CSA membership and farm stand visitation, indicating respondents value eating neighborhood food both as a benefit to themselves but also to the community farmer.

Farm Volunteering

All three of the surveyed agrihoods provide opportunities for residents to volunteer on the farm in some capacity, however, the rate of volunteering amongst respondents was quite low, indicating that volunteering on the farm is likely not the norm amongst agrihood residents (Figure 46). The biggest barrier to volunteering indicated by respondents across all three agrihoods was a lack of time to commit to helping on the farm. Physical ability, the location being inconvenient, or being uncomfortable working outside were not found to be major barriers for volunteering (Table 20).

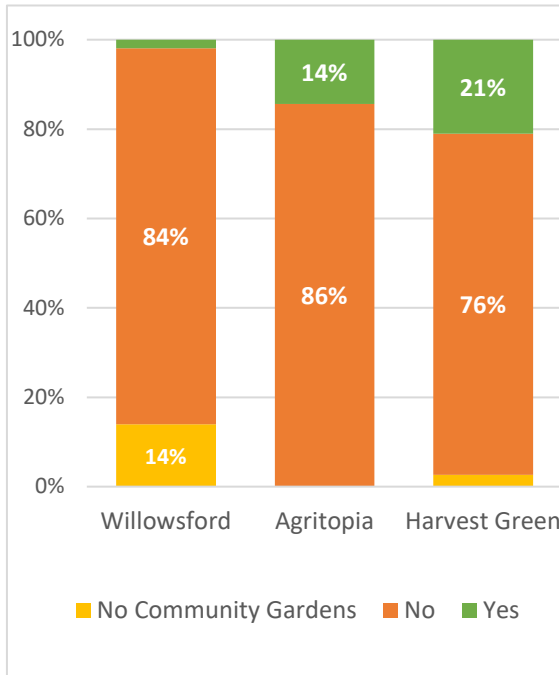


Figure 445. Community Garden Participation by Agrihood

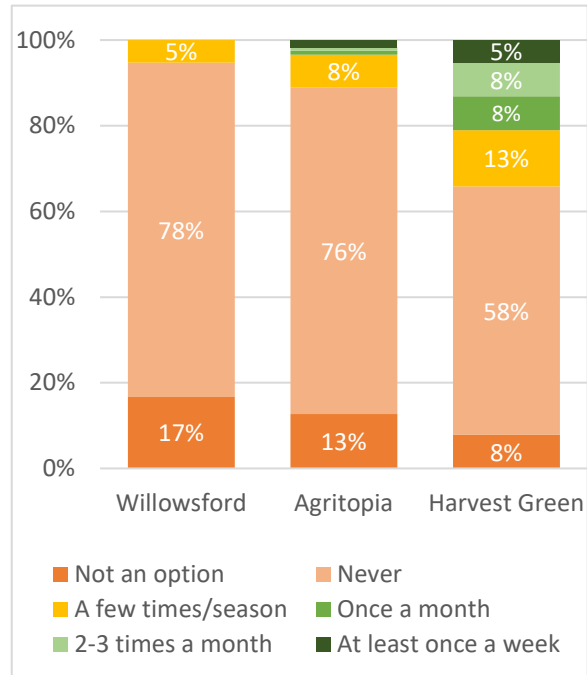


Figure 46. Farm Volunteering by Agrihood

Community Gardens

Participation in the community gardens within each agrihood appears to be low given the survey response data (Figure 45). Only 2% of Willowsford respondents, 14%

Barriers to Volunteering on the Farm			
	Willowsford	Agritopia	Harvest Green
Time	56%	62%	67%
Physical ability	6%	11%	4%
Uncomfortable working outside	5%	2%	4%
Don't know anyone else who volunteers	10%	8%	13%
Location is inconvenient	7%	0%	0%
No interest	7%	0%	0%
Other	9%	17%	13%
Motivations for Volunteering on the Farm			
Volunteering is required	0%	0%	3%
I enjoy being outside	32%	37%	29%
Like knowing how my food is grown	20%	15%	15%
Engaging with neighbors	20%	33%	29%
My kids enjoy it	28%	7%	18%
Other	0%	7%	6%

Table 20. Barriers and Motivations for Farm Volunteering

Agritopia respondents, and 21% of Harvest Green respondents indicated they maintained a lot in the community garden in the past year. However, correspondence with the farm manager in each agrihood highlights the extent to which the lack of participation is due to a lack of community garden plots or a lack of interest by residents. At Willowsford, there are approximately 30 garden plots, most of which are full, indicating there may be unmet demand for garden plots, rather than a lack of supply. At Agritopia, there are 49 community garden plots, all of which are leased out, with a waiting list of around 10-15 people, indicating there may be a shortage of garden plots, not a lack of interest. Finally, at Harvest Green, there are 85 community garden plots in the neighborhood, 32 are actively maintained, indicating the limited participation is due to a lack of demand, rather than a shortage of garden plots.

CHAPTER 5

KEY THEMES AND LESSONS

The resident survey and case study analysis highlighted some of the key similarities and differences between the agrihoods in their development history, physical characteristics, and business structure, but also in levels of resident engagement with agricultural amenities. One of the patterns which emerged from the resident survey was the residents' lack of engagement with their neighborhood's agricultural amenities—specifically CSA membership, farm store visitation, and volunteering. The resident survey also suggested that the agricultural amenities within the agrihood were not the most important factor in residents' decision to move to that neighborhood, and that perhaps the general character of the community was most important. However, residents generally felt a high level of satisfaction and attachment to their neighborhood. The case study analysis shed light on the differences in the management structure of each agrihood and the different histories surrounding each community. The following section draws on these key themes and uses interview results from agrihood developers and farmers to help explain some of the ways these challenges are being addressed in each unique context.

Farm Design and Location

The location and design of agricultural amenities and sales outlets within the neighborhood are critical components to the success of and resident engagement with the neighborhood food system. A common sentiment shared by four of the interview participants was that agricultural amenities should ideally be integrated into a well

trafficked part of the neighborhood, in order to maximize engagement and visibility, and be placed on the most suitable soils, in order to enhance farm production.

For two of the agrihood developers interviewed, the placement of the farm within the neighborhood was an intentional decision which factored in visibility and access to residents, the history of the site, and suitability for agriculture. However, in designing a neighborhood, agricultural needs must compete with other development goals, such as viewsheds, street layouts, and recreation amenities. Given that the resident survey highlighted that the character/feel of the community was the most important motivator for moving to an agrihood, compared to the agricultural amenities, it might be tempting for a developer to prioritize the placement of homes and capturing views in the design of the neighborhood.

However, a cautionary tale emerged from one farm manager interviewee, who stated that “the development from the start should have been completely designed differently, they put the houses where the best farmland was, and it had to do with the viewshed being better.” Farming in this agrihood has thus been made very difficult, as the farmer described the farm as “a clay swamp on top of a windy ridge, kind of like farming the surface of Mars, it’s really a brutal spot.” In this agrihood, prioritizing viewsheds over the most ideal location for the farm has led to frustration, significant cost to attempt to revitalize the soil, and diminished agricultural production, all of which can impact the character/feel of the community which attracted residents in the first place.

On the contrary, three developers who have had more success growing crops on their agrihood farm prioritized the placement of the farm in areas with an agricultural history and areas with high visibility to residents. One interviewee said, “The areas that

have been designated for agriculture, for the most part, are all areas that have history as farmland...which have agricultural infrastructure.” Another developer commented that they “wanted people connected to the farm, so all along the loop road all those people are actually facing the farm and seeing it every day.” Finally, a third developer commented that they placed the farm in an area which residents would have to walk through the farm in order to access the commercial areas of the development, using the farm as sort of a delineation between the residential and commercial uses.

The results of the resident survey can also be used to help explain the importance of farm placement to resident engagement with the food system. The three surveyed agrihoods all have the farm and sales outlets in a different location relative to the rest of the neighborhood. In Agritopia, the farm and farm store are at the center of the community. At Harvest Green, the farm and farm store are located at one of the main entrances. Finally, at Willowsford, which is spread out over four different neighborhood segments, agriculture is dispersed throughout the agrihood and the farm store is located in the middle of one of the neighborhood segments. When asked about the biggest barriers to CSA membership and farm store visitation, 44% of Willowsford respondents indicated that inconvenience was the biggest barrier to visiting the farm store, which was the highest amount for any one of the listed barriers. Meanwhile, at Agritopia and Harvest Green, inconvenience was not a major barrier for either CSA membership or farm store visitation, which may be related to the centralization of the farm store in those two neighborhoods, compared to Willowsford, where the neighborhood is dispersed over a much larger area. Surprisingly, inconvenience was not a major barrier for CSA

membership at Willowsford, which may be related to the fact that home delivery is available as well as multiple pick-up locations.

Providing Convenience in Food Shopping

While the location of the farm and sales outlets is important for providing convenience for residents, interviewees also expressed the importance of providing flexibility and convenience to residents in terms of how food is sold through the CSA and farm store. While a farm store or CSA pickup location within one's neighborhood might seem to be the most convenient option for food shopping, the growing trend of grocery home delivery services may be undercutting the convenience of a neighborhood sales outlet. Furthermore, the variety of items that can be sold at a CSA or farm store may be limited by what can be grown in a given climate, such that the options available at an agrihood CSA or farm store may be more limited compared to a traditional grocer. The issues of convenience and lack of options acting as a barrier to local food purchasing is not unique to agrihoods but it is a common theme found in the literature about farmer's markets and CSAs around the country (Bond et al., 2009; Morgan et al., 2018; Stewart & Dong, 2018; Wolf et al., 2005). Four of the interviewees expressed their thoughts and solutions for how to provide more variety and convenience

Results from the survey indicated that agrihood residents are generally affluent, middle-aged, and have children. This is echoed by interviewees across four agrihoods who described their residents as leading busy lifestyles with many activities competing for attention for families with children. Meanwhile, what one interviewee described as the "amazon-ification of people's expectations," has led to people expecting immediacy, convenience, and high quality in their shopping experiences. This has pitted agrihood

CSAs and farm stores against companies such as DoorDash, InstaCart, and other grocery delivery services which allow residents to select specific items and have them delivered straight to their door exactly when they need them. At least one neighborhood, Willowsford, has adapted a home-delivery service model for their CSA and uses a new software which allows residents to choose what they want in their CSA share each week, as long as that item is available at the farm.

Two interviewees also expressed that another set of barriers related to resident involvement in the CSA program or visiting the farm store had to do with portion size and culinary knowledge. One interviewee described how people don't cook much anymore and that meal delivery kits provide residents with ready-made dinners for their family, which makes it tough for them to compete with. The farm manager described how for residents "if you've got to go down to a farm store to pick up your CSA box and while you're there pick up some other products to make a dinner and then go home and clean it, chop it all up and cook, for a lot of people that's just that's it that's a big barrier." In another instance, a farm manager felt residents were cancelling their CSA membership because they felt they were wasting too much food because they received too much produce that they did not necessarily know how to use and cook with.

Four of the agrihood farm managers and developers have come up with solutions to the issues centered on convenience and food variety. Selling value-added products, such as jams and sauces, either produced on site or resold from a surrounding supplier allows residents to accomplish more of their shopping within the neighborhood than only having the option to purchase fresh produce. Aberlin Springs and Willowsford have also experimented with selling pre-made meals and desserts from their farm store. Agritopia

even includes restaurants and cafes within the neighborhood, which are supplied by the farm, allowing residents to support the farm while not necessarily needing to cook from scratch. Meanwhile, agrihoods including Aberlin Springs, Willowsford, Creekside Farms, offer cooking classes for residents, where they learn how to cook with the produce from the farm, providing a critical link between residents and the farm.

Resident Engagement Strategies

The events, classes, and volunteer opportunities organized by agrihood farms are an important means for resident to engage with the farm. However, similar to the situation with the sales outlets, residents are generally very busy and getting them to engage with the farm can be difficult, according to four interviewees. The types of events and classes put on by agrihood farms include the aforementioned cooking classes but also community dinners, farm summer camps for children, farm tours, plant identification, gardening classes, speakers' series, and concerts on the farm. Most of the agrihoods also provide opportunities for residents to volunteer on the farm, either formally or informally, but none of them require volunteering on the farm.

The sentiment shared by three of the interviewees was that residents were generally excited to live near a farm but getting commitments to engage, whether it be with volunteer opportunities, sales outlets, classes, or events can be difficult. However, this is not universal, as certain types of events and classes have done better than others. Furthermore, two interviewees expressed the importance of providing multiple modes of engagement and allowing the residents who are very interested in connecting with the farm the means to do so. One farm manager described how "people do need lots of different ways to interact. And I think it's critical for the people who really want to geek

out on something like this that we provide them that avenue because otherwise their energy gets kind of spun out.” Harvest Green, for example, operates a ‘Farm Club’ for residents who want to engage with the farm in a deeper manner. These individuals pay a monthly fee to access a community garden plot, seeds and transplants, learning opportunities from invited speakers, and access to events and activities at the farm.

Another common sentiment shared by two interviewees was that making events and classes family friendly and geared towards children attracted more interest than purely adult classes. Examples of events and activities geared towards children include closing up the chicken coop and collecting eggs, taking home newly hatched baby chicks for a week, or farm-based summer camps for children. Aberlin Springs even includes cooking and baking classes geared for children. As one interviewee described “we have some attendance variability. But we've definitely found a very positive reception from the community and specifically for opportunities that involve families and kids” Overall, activities geared for children allow them to engage with the farm, play with their friends, and for the adults to engage with their neighbors or have time away from their children to do other things.

The events and activities organized by agrihoods are meant to engage residents with the farm and with each other. These events are an important aspect of agrihoods and help distinguish this type of development from a neighborhood that simply is located next to a farm. There is a deliberate and planned relationship between the residents and the farm, which takes many forms, including the CSA membership and farm store, but the educational and engagement opportunities are what make the resident and farm relationship unique in an agrihood. Furthermore, this is where food system learning

happens and can help foster a local foods culture amongst residents that helps to support the farm through sales. Agrihood developers and planners should make engagement with the farm easy and opportunities plentiful for residents who want to engage deeply with the farm or those who want to do so occasionally. Additionally, gearing events and activities to children is an important means to engage residents, both young and old, as young families are the dominant demographic in agrihoods and parents are looking for activities for their children.

Importance of Farm Staff

Though not captured in the resident survey, agrihood farm labor was a recurring theme in all interviews with developers and farm managers. Interviewees discussed the high level of skill required by agrihood farmers, the issues caused by frequent staff turnover, the cost of labor, and the importance of volunteer labor. These themes are echoed by Norris (2018, p. 36) who includes a section on labor in a list of best practices for agrihoods, saying developers “face difficulties in identifying and recruiting farmers with the diverse skill sets necessary for project success” and that “plans should be put in place for farm operations to continue should changes farm leadership occur.”

Agrihood farm staff need to be highly skilled and are more than just farm laborers. The daily requirements of interacting with a community, educating residents, managing volunteers, and planning events, on top of the requirements of running a complex farm operation, requires a high degree of skill and passion to succeed. One lifestyle manager described agrihood farm staff requirements, saying:

“they have to be technologically savvy. They have to be people oriented. They have to know how to socially engage others, they need to be able to be planners and organizers. They need to know how to deal with conflict resolution when you're dealing with volunteers and the program. So, they have to have a myriad of skills and that's the difference in the fees that we're paying.”

Another farm manager described how “they don't really have the labor category” in their operation, describing that the physicality of the work is a given and is expected but that the “operations are so dynamic and require so much thinking that the labor is kind of the smallest part of it” and that working as an agrihood farmer is “somewhat of an intellectual endeavor.” Agrihood farms are often complex operations and staff are required to manage production across multiple sites and types, such as orchards, pasture, greenhouses, and crops, manages sales outlets, such as the CSA and farm store, engage residents through education events and volunteering, and finally, work closely with the parent organization, either the HOA, neighborhood conservancy, or developer in ongoing planning efforts.

Indeed, the high level of skill required by agrihood farmers raises salaries and means that paying farm staff is one of the largest expenses in operating the farm. Two interviewees discussed the high cost of labor relative to their other expenses, which is pushing some farm managers to rely more heavily on volunteers. One farm manager described how they have:

“three staff members that do all of it, run the farm store, run the CSA program, run the community garden, and do all of our production and take care of the orchard. So we rely heavily on volunteers to kind of push us through. So, finding that labor model and how much money do we need to make on a farm to kind of offset that? That's been tricky for us.”

However, sometimes managing volunteers can take more time from staff than otherwise would have been spent if they were to do the same task due to the training and supervision required. At one agrihood farm, where the operation is run by a non-profit, volunteers come in large groups, many from outside the agrihood itself, to work on the farm, such as school groups or corporate volunteer groups, which means the staff can be more efficient when training a larger group who can accomplish more than just training a few individuals at a time.

The importance of finding the right farmer (or farm staff) and sticking with them for the long term was highlighted as a theme from interviewees, due to the level of trust that builds up between the farmer and the community and the communication between the farmer and the farm manager, HOA, and/or developer. Farmers also bring a level of expertise to planning a farm operation and can be valuable partners in the early planning and development stages to ensure the agricultural components of the neighborhood flow smoothly and that expenses are accounted for from the onset. One farm manager reflected on the situation in their agrihood, saying “the development happens with people who are inexperienced with the business planning that goes into having a farm. Therefore, it's up to the farmers to then relay this information to everyone and they haven't had people sticking around for too many years in a row. So, there's this kind of this like communication barrier.” Farmers are important partners in developing an agrihood and should be involved in planning the farm – both the physical characteristics and the business structure. Bringing that knowledge in from the onset of a project can help avoid costly mistakes in the location and design of the farm and can help set reasonable expectations for operating expenses and revenue.

CHAPTER 6

CONCLUSION

This thesis serves as a baseline study, presenting some of the first empirical research on the agrihood trend, with a focus on how the neighborhood food systems take shape within agrihoods and how residents engage with agricultural amenities. The results of this research can help situate the agrihood development model within the context of farmland preservation and local and regional food systems. More practically, the results of this research can also help developers, land-use planners, landscape designers, farm managers, and prospective agrihood residents understand how these neighborhoods operate and how other agrihoods have addressed some of the challenges associated with managing a neighborhood food system. The main conclusions taken from this thesis include:

- Agrihoods are generally located in suburban areas and the six agrihoods in this study were all developed on land formerly used for agriculture.
- While four out of six agrihoods permanently protect their farmland, the proportional amount of farmland in the community varies by orders of magnitude amongst the six.
- The six agrihoods employ a variety of business structures to manage the agricultural amenities, with four using resident fees to supply a guaranteed cash flow to the farm and two relying on sales revenue alone to support the farm.
- All six agrihood farms produce a variety of fruits and vegetables, sell through direct-to-consumer outlets such as a CSA, farmers' markets, or farm store, and make food available to both agrihood residents and the surrounding community.
- For most residents, the most important motivator in their decision to move to the agrihood was the character/feel of the community, not the agricultural amenities.

- Four interviewees expressed that residents are generally very busy and survey respondents indicated convenience was a large barrier for residents engaging with the farm, both in terms of food purchasing, farm events, and volunteering.
- Interviewees expressed that agrihood farmers and farm staff need to be highly skilled and able to undertake all the agricultural responsibilities but also manage events and activities with residents.

The resident survey, interviews, and analysis of agrihood business structures highlight the nuances of how agrihood residents relate to the agricultural amenities in their neighborhood and suggests possible avenues for advancing farmland preservation and local and regional food systems within this development model. A majority of the agrihoods identified and characterized for this study are located in a suburban context, indicating that most agrihoods are likely to be built along the interface of growing metropolitan areas and the rural countryside (Forsyth, 2012). Situating agrihoods in this context makes sense, as agrihoods bring together the agricultural production found in rural areas with the people found in more urban areas. As research from the *American Farmland Trust* (Barley & Pottern, 2020; Sorensen et al., 2018) makes clear, farmland around the United States is being converted to development at an increasing rate and much of that conversion takes place along the suburban-rural interface, adding importance to the protection of farmland and the viability of farms in these areas.

The case study communities appear to have all taken land formerly used for agriculture, developed some of the land, and preserved the rest as open space and farmland. However, an analysis of land use at the six case study communities shows a variation in the amount of farmland preserved relative to the total acreage of the community and the number of units. Farmland acres per unit ranges from a hundredth of

an acre to a third of an acre and the percentage of farmland out of the total agrihood acreage ranges from 1% to 35%. The use and intensity of the farmland varies in each neighborhood, with all including a working farm producing a variety of fruits and vegetables, but others, such as Agritopia including orchards and Willowsford and Aberlin Springs incorporating pastureland. While there is no threshold for the percentage of farmland or types of farmland in the neighborhood required to be considered an agrihood, the variation shown amongst the case studies in the study indicate that there is a high-degree of variation amongst communities marketing themselves as agrihoods. Further research could be carried out to refine this analysis across a broader set of agrihoods, looking at the farm acreage relative to the total acreage and the number of units to further understand the extent to which agrihoods, most of which are situated in suburbia, can be seen as a development model which can preserve significant farmland while also housing a growing population. This information could also be used to develop a set of standards within the real estate industry to help add clarity to the term ‘agrihood.’

Agricultural easements are one of the most effective tools in protecting farmland from development (American Farmland Trust, 2016) and this study found that of the six case study communities, only one is using an agricultural easement, but three others permanently protect the farmland from development, but don’t specify agriculture. Considering that most agrihoods are being developed in suburban areas and possibly on land formerly used for agriculture, this type of development can be considered a compromise between farmland protection and housing demand, both of which are important goals for planners to consider. However, for agrihoods to be considered a means to protect farmland from development, local officials may want to consider

permanent agricultural easements as a requirement for development of an agrihood. Zoning and land use tools such as density bonuses, easing of setback requirements, or minimum lot coverage could be used as leverage to incentivize developers to permanently protect farmland.

Furthermore, the protection of the farmland also serves as assurance for residents that the agricultural amenity will remain part of the community in perpetuity. A cautionary tale emerged from a master-planned community in Fort Collins, Colorado, called Bucking Horse, which originally was marketed an agrihood and received buy-in from hundreds of residents. However, during early development stages the plot of land which was originally planned for the farm was switched to a childcare center, which, according to articles has enraged residents who were promised a farm (Ferrier, 2019). Furthermore, this example shows how, without measures to protect farmland in an agrihood, a developer can build on that open space, which is an issue for residents but also has implications for the ability for agrihoods to be seen as a means to preserve farmland while providing housing. Nonetheless, most of the agrihoods researched in this thesis have taken measures to protect farmland in some capacity, which provides certainty to residents and contributes to farmland preservation.

The extent to which agrihoods contribute to local and regional food systems is tied to the amount of food produced, the types of sales outlets, the amount of food sold through these outlets, and the amount of food sold within versus outside the agrihood itself. This study did include a characterization of the neighborhood food system at each agrihood but did not include all of the variables required to make a conclusion about agrihoods' contributions to local and regional food systems. What emerged from this

study is that, of the seventy-eight agrihoods identified, over a third sell their produce through either a CSA model or farmers' market, indicating that direct-to-consumer sales do take place at agrihoods but it may not be the majority.

Of the six case study communities, four sell food through a CSA model, five sell food at a farm store in the neighborhood, and five sell at farmers' markets within or outside the community. Agritopia also sells produce grown on the farm to restaurants within the neighborhood, which is unique amongst the case study communities, and another way in which agrihoods can contribute to local food systems. All of the communities make food available to residents outside of their agrihood through all of their sales outlets. As in, all of the agrihood CSAs take members from outside of the community and all of the agrihood farm stores are open to residents from outside the agrihood. This study did not look closely at the amount of food produced and sold at each agrihood nor the amount of food sold to agrihood resident versus non-residents, so conclusions about their contributions to local and regional food systems are difficult to make. However, this is an important area for research given the importance of rebuilding local food systems (Ackerman-Leist, 2013) and agrihoods' potential in this regard, given their integration into residential areas.

The results of the survey suggest that the extent to which agrihood residents themselves are CSA members or regularly shop at the farm store may be limited. Less than 20% of Agritopia and Harvest Green respondents and less than 50% of Willowsford respondents are CSA members and less than 50% of respondents at each community shop at the farm store at least once a month. While this may be surprising given residents decided to move to a neighborhood with agricultural amenities, the survey results

indicate that the agricultural amenities were not the primary motivators in this decision. The character and feel of the community was the most important motivator in the residents' decision to move to their agrihood, more than the presence of farms and gardens, both of which were more important than the access to locally grown food. This is similar to golf course communities, where research has shown that about 40 percent of golf course development residents do not play golf but purchase homes in such subdivisions for their open space vistas (Arendt, 2010, p. 25). For agrihood residents, it may be the case that the agrarian aesthetics of the community are more important than the convenient access to locally produced food.

In fact, survey respondents indicated that convenience was a barrier which limited their purchasing of local food, as well as cost. These results agree with other studies, which have found that convenience (Bond et al., 2009; E. H. Morgan et al., 2018; Wolf et al., 2005) and cost (French, 2003; Padel & Foster, 2005) are two of the biggest barriers to local food purchasing. Given the high household incomes found across all three agrihoods, it is surprising that cost is a major barrier to participating in the CSA or buying from the farm stand, however, it may be that the overall cost of living is higher in these neighborhood, such that there is still limited expendable money available to spend on local food. Still, further study could explore whether, neighborhood-produced food is actually more expensive than surrounding grocery stores, as numerous studies have indicated that direct-to-consumer outlets are cost competitive or even cheaper than non-local foods (Claro, 2011; Donaher & Lynes, 2017; McGuirt et al., 2011; Pirog & McCann, 2009; Valpiani et al., 2016).

However, agrihoods should continue to try to increase resident engagement with the food and farming amenities in the neighborhood, given the value of building community over food, educating people about nutrition and food systems, and the likelihood that residents may purchase more food from the neighborhood if they understand the value of fresh produce and supporting local farmers. The most important motivations for residents who did support the CSA and farm store were supporting local farmers and the health and taste of food, both of which are values which can increase with education and engagement with the farm. Agrihoods also need to be dynamic in how they sell their food to residents given the availability of grocery and meal delivery offered online, which appear to make even having a CSA or farm store in one's neighborhood seem inconvenient compared to delivery.

Overall, survey respondents indicated they have a strong attachment to their neighborhood, their neighborhood has a pleasing ambiance, and they have many friends in their neighborhood. These factors are all related to place attachment and neighborhood satisfaction, both of which seem to be high in agrihoods. A study by Lovejoy et al. (2010) examined characteristics associated with neighborhood satisfaction among residents of traditional and suburban neighborhoods and found that the most important features for neighborhood satisfaction were the attractive appearance and the perceived safety of the neighborhood. So, it is perhaps not surprising that for all three agrihoods, residents strongly agreed that their neighborhood had a pleasing ambiance and they had a strong attachment to the neighborhood, because one reinforces the other. The presence of green space in agrihoods, in the form of the agriculture, conservation land, and trails, may also

factor into the pleasing ambiance and attachment to the neighborhood, as green space can be a predictor of community attachment in other communities (Arnberger & Eder, 2012).

Based on the survey results, it appears that agrihood residents enjoy living in a neighborhood with a farm and moved there primarily because of the aesthetics of the community. While levels of engagement with the farm through food purchasing or volunteering may be limited, four of the six agrihoods in this study charge residents a fee to support the farm. In this way, the agrihoods which are charging residents a fee to support the farm are leveraging residents' interest in living in a beautiful community with a farm, to support the viability of the farm and its possible contribution to local and regional food systems. Just as many neighborhoods charge residents an HOA fee or membership fee for a golf course or wellness center, these agrihoods use fees to support the farm, which is an important source of revenue given that resident food purchasing may be limited. This is a business model which would appear to make sense and something agrihoods may want to consider from the onset of the development.

As demand for quality urban and suburban housing continues to increase, agrihoods can be seen as a development model which may be able to alleviate the tension between housing and farmland preservation and also contribute to local and regional food systems. Land-use regulators and real estate developers may want to consider a set of standards and thresholds for neighborhoods to be considered agrihoods. This could help developers differentiate their communities by limiting the term agrihood to only those developments which include a certain percentage of farmland, agricultural programming, and sales outlets. Likewise, land-use regulators may want to consider zoning tools for subdivision development along the rural-suburban interface where developers can receive

incentives for the integration of farmland into their developments and the permanent protection of farmland and open there within. The specific amount of farmland and the tools used for protection can be left for local officials to determine but this thesis notes that there is great deal of variation in the amounts of farmland and the tools used for protection within the subset of agrihoods studied.

The agrihood is a new phenomenon and as results of this thesis show, a nuanced and complex development model and relationship between agrihood residents and the neighborhood food system. This is ripe area for further research across a broad spectrum of disciplines. This thesis serves as a baseline study with a wide-ranging focus on the development history, physical characteristics, and business structure for a subset of agrihoods and also how residents engage with and think about agricultural amenities. Further research could go more in-depth or expand on any of the topics discussed in this thesis.

Agrihoods represent a development model with important implications for farmland preservation, local and regional food systems, and housing. In a historical context, beginning with greenbelt towns, to post-war suburbs, New Towns, conservation subdivisions, and finally to the local foods movement of the last few decades, the agrihood phenomenon can be seen as a current example of people wanting to relate to and live in conjunction with food production and open space. This is a development model which seems poised to grow as the majority of developments have been built or broken ground in the past few years. Looking forward, agrihoods may be able to contribute to farmland preservation and local food systems in a significant way or be more akin to a superficial marketing tool used by developers to differentiate their

communities. As more agrihoods break ground and open to residents, only time and further research will tell where these developments lie along this spectrum. Regulators and developers, along with citizens, have a role to play in guiding this development model towards a desirable outcome for all parties.

APPENDICES

APPENDIX A

AGRIHOOD DISCOVERY TABLE

#	Development Name	City	State	Context	Year	Total Acres	# Units	Farm Acreage	Farm	Comm Gard	Orchard	CSA	FM
1	Eco Modern Flats	Fayetteville	AR	URB	2011		96			C			
2	Red Barn Bentonville	Bentonville	AR	SUB	2018	15.5	138	2	F			CSA	
3	Agritopia	Gilbert	AZ	URB	2005	165	450	11	F	C	O	CSA	FM
4	Southlands	Tsawwassen	BC	SUB	2008	538	0	250	F	C			
5	Creekside Mills	Lindell Beach	BC	RUR	2015	79	129			C	O		FM
6	Rancho Mission Viejo	Rancho Mission Viejo	CA	SUB		23,000	14,000		F	C	O		
7	The Cannery	Davis	CA	URB	2015	100	547	5	F				
8	North River Farms	Oceanside	CA	SUB	2016	177	700	30	F				
9	Miralon	Palm Springs	CA	SUB	2016	309	1150	75	F	C			
10	Fanita Ranch	Santee	CA	SUB	2017	2,500	2,900	25	F				
11	Win6 Village	Santa Clara	CA	URB	2018	6	361	1.5	F				
12	Bucking Horse	Fort Collins	CO	SUB	2014		1000	3.6	F			CSA	FM
13	Mariposa	Denver	CO	URB	2017		800			C			
14	Fox Hill	Franktown	CO	RUR	2017		92			C	O		
15	Aria	Denver	CO	URB	2018	18	400			C			
16	S*Park	Denver	CO	URB	2018		0			C		CSA	
17	Pine Dove Farm	Tallahassee	FL	SUB	2017	203	130	1.5		C			
18	Arden	Wellington	FL	URB	2018		2000	5	F				
19	The Grow	Orlando	FL	SUB	2018	1,200	2,078	9	F	C			FM
20	Serenbe	Chattahoochee Hills	GA	RUR	2004	1,000	0	25	F			CSA	FM
21	Bludress Farm	Grayson	GA	SUB	2017		45		F				
22	Eco Cottages at East Point	Atlanta	GA	URB	2017	8	40			C			

23	Gateway Heights	Macon	GA	URB	2017	13	20	5	F					
24	Kukuila	Kauai	HI	RES	2015		0	10	F					
25	Hoku Nui Maui	Makawao	HI	RUR	2018	258	0	230	F					
26	Dows Farm	Ames	IA	SUB	2018	179	382	43	F					
27	Hidden Springs	Hidden Springs	ID	SUB	1999	1,844	0	0	F		O			
28	Dry Creek Ranch	Boise	ID	SUB		1400	1800		F	C			CSA	
29	Prairie Crossing	Grays Lake	IL	SUB	1994	675	317	100	F	C				
30	Serosun Farms	Hampshire	IL	SUB	2018	400	114	160	F					
31	Tyron Farms	Michigan City	IN	SUB	2015	170	65		F					
32	Michigan Urban Farming	Detroit	MI	URB	2016	3	0	2	F	C	O			
33	White Oaks Savanna	Stillwater	MN	SUB	2018		30	115	F					
34	Farmers Park	Springfield	MO	URB	2014		58			C				FM
35	Orchard Gardens	Missoula	MT	SUB	2006	4.6	35	2	F	C	O	CSA	FM	
36	Wetrock Farms	Bahama	NC	SUB	2015	230	141	15	F					
37	Olivette	Asheville	NC	SUB	2016	346	300	46	F	C			CSA	
38	The Urban Farm at Aldersgate	Charlotte	NC	SUB	2018		0	6.7	F				CSA	
39	River Bluffs	Castle Hayne	NC	SUB		313	0	10	F				CSA	FM
40	Creekside Farm	Arden	NC	SUB	2019	20	18	60	F	C			CSA	
41	Garden View	Lincoln	NE	SUB	2018	63	0			C				
42	The Village at Stone Barn	Peterboro	NH	RUR	2018	32	30			C			CSA	
43	Pendry Natirar Residences	Peapack	NJ	SUB		90	24	12	F				CSA	
44	Mesilla Vineyard Estates	Las Cruces	NM	SUB	2016		40	14	F					

45	Farmstead at Corley Ranch	Gardnerville	NV	SUB	2015	130	250				O		FM
46	Arbor House	New York	NY	URB	2012		0		F				
47	Staten Island Urby	Staten Island	NY	URB			0		F				
48	Elliot Farm	Loveland	OH	SUB	2016	100	200			C			
49	Aberlin Spring	Morrow	OH	RUR	2018	141	139	50	F	C		CSA	
50	Carlton Landing	Lake Eufala	OK	RUR	2013		3000		F			CSA	FM
51	Drayton Ridge	Drayton	ON	RUR	2018	118	189			C	O	CSA	
52	Edwards Addition	Monmouth	OR	SUB	2002	88	200	3	F	C		CSA	
53	Pringle Creek Community	Salem	OR	SUB	2006	32	137			C	O		
54	Fairview Addition	Salem	OR	SUB	2015	50	0		F				
55	Hilltop Urban Farm	Pittsburgh	PA	URB	2018	107	0	23	F		O		
56	Hendrick Farm	Chelsea	QC	SUB	2011	107	0	5	F				
57	Palmetto Bluff	Blufton	SC	SUB		20,000	4,000	2.5	F				
58	The Cliffs at Mountain Park	Marietta	SC	RUR			0	5	F				
59	Springbrook Farm	Alcoa	TN	SUB	2017	265	0	15	F	C			FM
60	Berry Farms	Franklin	TN	SUB		600	0			C			FM
61	Harvest Point	Spring Hill	TN	SUB		500	1198			C			
62	Harvest Green	Richmond	TX	SUB	2015	1,300	2,134	12	F	C	O		FM
63	Orchard Ridge	Liberty Hill	TX	SUB	2016	248	670			C	O		
64	Elgin Agrarian Community	Elgin	TX	RUR	2017	23	80	3.5	F		O		
65	Harvest	Argyle	TX	SUB	2018	1,200	3,200		F	C			
66	Village Farm Austin	Austin	TX	SUB	2018		152		F	C			

67	Whisper Valley	Austin	TX	SUB		2062	7500		F	C				FM
68	Farm Colony	Standardville	VA	RUR	1976	285	48	120	F					
69	Bundoran Farm	North Garden	VA	RUR	2007	2,300	99		F					
70	Willowsford	Loudon County	VA	SUB	2011	4,125	2,195	300	F	C	O	CSA	FM	
71	Chickahominy Falls	Glen Allen	VA	SUB	2018	180	400	10	F					
72	Cobb Hill Cohousing	Hartland	VT	RUR	2003		0	270	F					
73	South Village	S Burlington	VT	SUB	2009	220	334	12	F	C				FM
74	Skokomish Farms	Shelton	WA	RUR	2012	770	18	630	F			CSA		
75	Grow Community	Bainbridge	WA	URB	2017	8	132			C				
76	Suzuki Farm	Bainbridge Island	WA	SUB	2018	14	0	0		C				
77	Agape	Mukwonago	WI	RUR	2018		10			C	O			
78	Broomgrass	Gerardstown	WV	RUR		320	16		F					

Table 21. Full list and characterization of agrihoods

APPENDIX B

INTERVIEW QUESTIONS

University of Massachusetts Amherst
Human Subjects Institutional Review Board
Interview Guide for Agrihood Developers and Farm Managers

Questions for Developers

Theme 1: History

- What was the previous use of this property?
- How was it acquired from the owner?
- How was the agrihood concept introduced to you?
- Was agrihood always the goal?

Theme 2: Financials and Business Structure

- How long, if at all, did it take for farm to break even?
- How important was the agrihood concept in driving demand and property values?
- What is the current business structure of the agrihood and how was it initially established?
- How is the farmer compensated?
- What is the cost of agrihood maintenance compared to traditional landscaping/amenities?
- Were there public incentive programs available and did you take advantage of them? (eg. Open space tax credits, easements, USDA grant)
- What have been your goals and markers of success?

Theme 3: Land Development and Design

- What is the overarching concept behind the design of the neighborhood?
- How was the location of the farm and other agricultural features determined?
- How was the size and type of agricultural features determined?
- Was it important to you to have agriculture focused or dispersed?
- How was home density, size, and type determined?
- What were the most important factors driving the design of this site?

Theme 4: Partnerships and Programming

- How were partners sought out and arrangements made?
- What are the main goals of partnerships?
- How is agricultural related programming designed, managed, and funded?

Theme 5: Agrihood Trend

- What are the biggest challenges and opportunities in developing an agrihood?
- What do you wish you knew going into this process?
- Do you envision this trend continuing to grow?

Questions for Farm Managers

Theme 1: History

- How did you find this job?
- What did the farm look like when you started?

Theme 2: Production and Equipment

- How is it decided what you will grow?
- Is there a mismatch ever between what you grow and what community wants?
- Do you raise livestock?
- Who is responsible for purchasing and maintain equipment?

Theme 3: Sales and Business

- What is the business structure of your operation?
- How are you compensated?

Theme 4: Distribution

- Through which outlets are products sold?
- Which are the most successful/profitable?
- How much of your time is spent on sales/marketing vs. production?
- Where does extra/unsold produce go?

Theme 4: Programming

- What role do you play, if any, in education programs on the farm?
- Do you think engaging residents with the farm enhances the success of the operation?
- Do community members from outside the neighborhood have the opportunity to engage with the farm?
- Do residents provide labor on the farm and how are they incentivized to do that?

Theme 5: Personal

- Do you live in the community?
- How well are you integrated into the community?
- What are the opportunities and challenges of working as an agrihood farmer vs. a typical operation of a similar size?

APPENDIX C

INTERVIEW PARTICIPATION SCRIPT

University of Massachusetts Amherst
Human Subjects Institutional Review Board
Interviews Participation Script

Email

Dear **Developer/Farm Manager**,

My name is Benjamin Breger and I am a graduate student at the University of Massachusetts – Amherst, studying landscape architecture and city planning. As part of my master’s thesis, I am carrying out research on the design, development, and management of agrihood developments across the United States and am interested in studying **INSERT NEIGHBORHOOD NAME**. I recently launched a website (www.agrihoodinfo.com) which tracks my research to date and includes a map of over 80 agrihoods across the country.

I would like to carry out a roughly 1-hour phone interview with you to understand your experience in the design, development, and ongoing management of **NEIGHBORHOOD NAME**. Your involvement in this interview is voluntary, and, if you agree, I will ask you a series of questions, which I will send you in advance and will audio-record and transcribe your responses. Your contributions will provide insight into the history and operation of your community and contribute to a broader understanding of the agrihood movement.

Please note, your name will be kept anonymous in any publication resulting from my research and this research protocol has undergone review from the University of Massachusetts Institutional Review Board.

If you are interested in participating in this interview, I will send over a consent form to fill out and then we can schedule a time to talk on the phone.

If you have questions about this project or if you have a research-related problem, you may contact the researcher, Benjamin Breger at bbreger@umass.edu or the faculty sponsor, Elizabeth Brabec at ebrabec@umass.edu.

Sincerely,

Benjamin Breger

APPENDIX D

RESIDENT SURVEY EMAIL REQUEST

University of Massachusetts Amherst
Human Subjects Institutional Review Board
Interviews Participation Script

Dear Agrihood HOA,

My name is Benjamin Breger and I am a graduate student at the University of Massachusetts – Amherst, studying landscape architecture and city planning. I am carrying out research on the design, development, and management of agrihood developments across the United States and am interested in studying **INSERT NEIGHBORHOOD NAME**. I recently launched a website (www.agrihoodinfo.com) which tracks my research to date and includes a map of over 80 agrihoods across the country.

As part of my research, I intend to carry out a **5-7 minute online survey** for agrihood residents, in order to understand resident motivations for moving to an agrihood and their level of involvement with the agricultural components of the neighborhood. I would like to ask for your help in administering this survey to the residents in your community. By doing so, you can receive insight into the appeal and functioning of your community as well as contribute to a broader understanding of the agrihood movement.

I would imagine you maintain a repository of email addresses for residents in the community. I would ask, if you are willing, that you send out the sample email below to the heads of household of each residence in your community, inviting them to participate in the survey.

I invite you to review the survey at the link below prior to sending it out to residents. Feel free to get in touch with any questions or concerns. If there is someone else I should talk to about administering this survey at South Village, please let me know.

The identity of residents in the survey will be kept anonymous and the protocol for this research has undergone review from the University of Massachusetts Institutional Review Board.

If you have questions about this project or if you have a research-related problem, you may contact me, the researcher, Benjamin Breger at bbreger@umass.edu or the faculty sponsor, Elizabeth Brabec at ebrabec@umass.edu.

Please find the survey at this link: -----

Sincerely,

Benjamin Breger

Please find attached a sample script for you to include in your email to residents describing the survey.

Sample script:

Dear Residents,

Do you have 5 minutes to spare? You are invited to participate in **an exciting research project about the growing trend of agrihood communities** across the United States. Researchers from the University of Massachusetts are seeking to understand the reasons why residents move to agrihoods and their level of involvement with the agricultural components of the neighborhoods. Participation in this survey is voluntary and anonymous and will contribute important insights to the growing trend of agrihood communities across the United States. **Please take 5-7 minutes to fill out the online survey at the link below.**

Please find the survey at this link: www.tinyurl.com/agrihoodsurvey

Sincerely,
Agrihood HOA

APPENDIX E

RESIDENT SURVEY OUTLINE

University of Massachusetts Amherst
Human Subjects Institutional Review Board
Interviews Participation Script

Thank you for taking the time to take this survey, your participation is greatly appreciated. The term “agrihood” is used throughout this survey and is used to describe “communities built with a working farm or community garden as a focus,” as defined by the Urban Land Institute. The integration of agriculture into planned residential communities, as found in agrihoods, is a recent and growing trend in real estate, with more and more communities built in this manner around the United States each year.

The purpose of this survey is to understand why residents choose to move to agrihoods, the extent to which residents participate in the production and consumption of food grown in the neighborhood, and the sense of belonging felt by residents within the community. The results of this research will help future agrihood developers, designers, and farmers better understand the appeal of agrihoods and better manage them.

1. Introduction
 - a. Which agrihood do you live in? *list of choices, select one*
 - b. What year did you move to agrihood? *list of years, select one*
 - c. Do you live in agrihood for 6 or more months of the year? *yes/no*
 - d. How many people live in your household? *list of numbers, up to 10, select one*

2. Reasons for Moving
 - a. Thinking back to when you first moved to agrihood, how important were the following factors? *Likert scale response: Access to locally grown food, presence of farms and garden, opportunity to work on the farm, community events and gathering, character/feel of the community*

3. CSA Membership
 - a. In the past year, have you ever been a member of agrihood’s CSA? *yes/no/not available*

- i. *If yes: What are your motivations for being a member of CSA? Rank the following: Convenience, affordability, health, taste, support local farmers, better for environment*
- ii. *If no: Why have you not been a member of CSA? Check all that apply: too expensive, inconvenient, lack of options, poor quality, portion size, other _____*

4. Farm Stand Visitation

- a. In a typical month during the harvest season how often, if at all, do you purchase food from the local farm stand or farmer's market in agrihood?
not available, never, a few times per season, once a month, 2-3 times a month, once a week, 2-3 times a week
 - i. *If once/mo, 2-3 times/mo, once/wk, 2-3 times/wk: What are your motivations for purchasing food from your neighborhood farm stand or farmer's market? Rank the following: Convenience, affordability, health, taste, support local farmers, better for environment*
 - ii. *If never, a few times/season: Why do you not purchase food from your neighborhood farm stand or farmer's market very often? Check all that apply: too expensive, inconvenient, lack of options, poor quality, portion size, other _____*

5. Farm Volunteering and Community Garden

- a. In the past year, have you maintained a plot in the community garden?
yes/no/not available
- b. In the past growing season, how often have you volunteered to work on the farm? *not available, never, a few times per season, once a month, 2-3 times a month, once a week, 2-3 times a week*
 - i. *If a few times/season, once/mo, 2-3 times/mo, once/wk, 2-3 times/wk: What are your motivations for volunteering to work on the farm? Check all that apply: Volunteering is required, I enjoy being outside, I like to know how my food is grown, engaging with neighbors, My kids enjoy it, other _____*
 - ii. *If never: What are your main barriers to volunteering on the farm? Check all that apply: time, physical ability, uncomfortable working outside, I don't know anyone else who volunteers, location is not convenient, other _____*

6. Neighborhood Satisfaction and Place Attachment

- a. How much do you agree or disagree with the following statements? *I have a strong attachment to my neighborhood, My neighborhood, is the best place for what I like to do, My neighborhood has a pleasing ambiance, I have many friends in my neighborhood*

7. Demographics

- a. What is your age? *18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+*
- b. What is the highest level of school you have completed or the highest degree you have received? *No HS degree, HS graduate, some college but no degree, associate degree, bachelor degree, master degree, doctoral degree, professional degree*
- c. What is your sex? *Male, female, non-binary*
- d. What is your household income? *Less than 25k, 25-49k, 50-99k, 100-149k, 150-199k, 200k+*
- e. Which statement best describes your employment status? *Working outside community, working from home, not working, retired, not working (other)*

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